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National Inst. of Education (ED), Washington, D.C.

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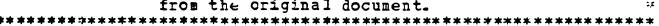
Bibliographies: Elementary Secondary Education: Higher Education: Indexes: \*Information Sources: \*Mathematics Education: Mathematics Instruction: Mathematics Materials: \*Reference Materials:

\*Resource Materials

#### ABSTRACT

Presented 3 a compilation of materials for teachers available through ERIC that focus on mathematics instruction. Over 900 citations were selected from those listed in Resources in Education (RIF) between 1966 and 1980. Abstracts of the documents are presented in the following categories: Algebra: Applications: Calculators and Computers: Calculus: Career Education: Consumer Education: Decimals: Diagnosis: Enrichment: Environmental Concerns: Fractions: General Mathematics: Geometry: Graphing and Functions: Low Achievers: Measurement: Metric Measurement: Numbers and Numeration: Cbjectives: Operations: Percent/Ratio and Proportion: Planning: Probability and Statistics: Problem Solving: Testing: and a section on Varied Topics for materials that include more than two distinct areas. Subject and author indexes are also included. (MF)

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# Especially for Teachers:



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# Teaching of Mathematics

1966-1980



CLEARINGHOUSE FOR SCIENCE, MATHEMATICS
AND ENVIRONMENTAL EDUCATION

The Ohio State University . 1200 Chambers Road, 3rd Floor Columbus, Ohio 43212

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Especially for Teachers:



Documents on the Teaching of Mathematics 1966-80

Compiled by
Marilyn N. Suydam
and
Jon L. Higgins

February, 1981

Produced by the ERIC Clearinghouse on Science, Mathematics, and Environmental Education, the ERIC Clearinghouse on Reading and Communication Skills and the SMEAC Information Reference Center (The Ohio State University). The publication is available in paper copy from the SMEAC Information Reference Center for \$6.00. Discounts are available on volume purchases.

SMEAC Information Reference Center The Ohio State University 1200 Chambers Road, Rm. 310 Columbus, OH 43212





This publication was prepared with funding from the National Institute of Education, U.S. Department of Education under contract no. 400-78-0004. The opinions expressed in this report do not necessarily reflect the positions or policies of NIE or U.S. Department of Education.



#### FOREWORD

The Educational Resources Information Center (ERIC) is a national information system developed by the U.S. Office of Education and now sponsored by the National Institute of Education (NIE). Through its network of specialized clearinghouses, each of which is responsible for a particular educational area, ERIC acquires, evaluates, abstracts, and indexes current significant information and lists this information in its publications, Resources In Education (RIE) and Current Index to Journals in Education (CIJE). It provides ready access to descriptions of exemplary programs, research and development efforts, and related information useful in developing more effective educational programs. The ERIC system makes available—through the ERIC Document Reproduction Service—much informative data.

However, if the findings of specific educational research are to be intelligible to teachers and applicable to teaching, considerable bodies of data must be reevaluated, focused, translated, and molded into an essentially different context. Realizing this need, NIE has directed the separate ERIC clearinghouses to develop information analysis papers in specific areas within the scope of the clearinghouses.

In a further refinement of efforts at information dissemination, ERIC has begun to develop tools especially designed for classroom teachers in specific content areas. The annotated bibliographies that comprise these tools reflect a unique way of partitioning the ERIC data base to provide teachers and their resource persons with direct and rapid aid for solving everyday problems.

We are pleased to announce, as part of the continuing series "Especially for Teachers," this publication of "ERIC Documents on the Teaching of Mathematics."

Robert E. Chesley Head, ERIC



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#### Note:

This publication is a cooperative effort of two ERIC Clearinghouses and the SMEAC Information Reference Center at The Ohio State University. Materials listed were selected by Dr. Suydam and Dr. Higgins especially for teachers.

If you find this publication helpful, you may also want to order the pilations of abstracts for <u>Resources in Education</u> produced by this Clearinghouse. Publication lists can be requested from the ERIC Clearinghouse for Science, Mathematics, and Environmental Education or the SMEAC Information Reference Center.

If you have comments on this or any other ERIC/SMEAC publication, please send them to us. We appreciate the past comments we've received.

Robert W. Howe Director ERIC/SMEAC

ERIC/SMEAC
The Ohio State University
1200 Chambers Road, Rm. 310
Columbus, OH 43212



#### INTRODUCTION

Try as they might, classroom teachers often do not have enough information at their fingertips to revitalize their lesson plans. They feel the urge to stimulate student learning with fresh teaching approaches, but they wonder how and where they can find the information. They need ready references without having to buy all the "how-to" books on the market. The ERIC database has responded to these needs for many years, offering access to the shared secrets of teachers, administrators, and educational researchers. Now, as part of a systemwide effort to provide information analysis products of current interest to particular users, the ERIC Clearinghouse for Science, Mathematics, and Environmental Education in cooperation with the ERIC Clearinghouse on Reading and Communication Skills offers this compilation of teaching materials for mathematics instruction.

Designed to supplement the day-to-day planning, teaching, and evaluation activities of mathematics teachers at all educational levels, this compilation contains over 900 citations chosen after careful review of documents that appeared in Resources in Education from 1966 to 1980. Amotations of articles from the Current Index to Journals in Education were not included. Since a document's selection for this bibliography was made on the basis of timeliness, teacher orientation, and nonrepetitiveness in relation to the other 2,100 documents reviewed, the omission of a document is not to be taken as a judgment of its quality. For the purposes of this bibliography, the term "teacher" represents both parents as the teachers of their preschool children and instructors of adults, young adults, children, and adolescents.

The classification scheme reflected in the Table of Contents, developed from staff recommendations and interviews with teachers, indicates the range of the ERIC database and the nature of the materials in the database. An index using terms from the ERIC Thesaurus of Descriptors provided another avenue of approach to the literature.

Knowing the diversity of teaching styles and teachers' wide-ranging interests and activities, we urge satisfied users of this compilation to return to the ERIC database for additional ideas.

#### AVAILABILITY OF DOCUMENTS

Copies of most documents announced in this index can be read in their entirety on microfiche reader/printers at any one of the 700 libraries or institutions that subscribe to the ERIC Microfiche Collection. If the author or corporate source of the document did not give permission for the document to be included in the ERIC Microfiche Collection, another source of availability will be noted in the citation. For a complete listing of ERIC Microfiche Collections in your area, call or write to the ERIC Clearinghouse for Science, Mathematics, and Environmental Education, 1200 Chambers Road, Rm. 310, Columbus, OH 43212 (614-422-6717).



Documents are also available in both microfiche (MF) and paper copy (PC) or microfiche only from the ERIC Document Reproduction Service (EDRS), Computer Microfilm International Corporation, P.O. Box 190, Arlington, VA 22210. The price per document is based on the number of pages and is subject to change over time. The ERIC Price Gode Schedule permits the user to convert all price codes to actual dollar amounts. Orders for 33 or more microfiche (MF) and all orders for paper copies (PC) will be shipped via United Parcel Service unless otherwise instructed. When ordering from EDRS, please specify MF or PC and include the ERIC Document (ED) number and the pagination of the document. Payment or an authorized original purchase order must accompany all orders.

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Descriptive Note -(pagination first)

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2500 ED 175 652: CSMP Mathematics for the Upper Primary Grades Part II, Teacher Guide. The Linkuages of Strings and Arrow, Geometry and Measurement, Workbooks, Final Experimental Version. Central Midwestern Regional Educational Lab. St.

Spons Agency--National Inst of Education (DHEW), Washington, D.C.
Pub Date-79
Note:

Note—346p.; For related documents, see SE 027 875-892; Contains colored charts and attisities which m. / not reproduce well - Not as clable in hard copy Lue to copyright restrictions
Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Curriculum Development, "Curriculum Guides, Early Childhood Education, "Elementary School Mathematics, Geometry, "Instructional -Materials, Mathematical Logic, "Mathematics Curriculum, "Mathematics Instructional Mathematics Instructional Ma struction, Measurement, \*Number Concepts, Primary Education, Ser Theory, Teaching Guides.

Textbooks, Workbooks Identifiers—Comprehensive School Mathematics

Program

This guide represents the final experimental version of an extended pilot project which was conducted in the United States between 1975 and 1976 The manner of presentation and the pedagog calideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "sp.: approach." The text begins with exercises in the Language of Strings and Arrows. These are in-tended to teach the skills of classification and provide a language for studying and tacking about relationships. The section entitied Geometry and Measurement emphasizes "experience" rather than 'mastery." Activities deal with distance and measurement in an unsophisticated sense. Five workbooks are included with problems of varying levels of difficulty all in one booket. The first ten prob-lems of each booklet are easy problems, the next ten to twelve pages are average level difficulty, and the last ten pages are more challenging problems. The students have the opportunity to work individually with the workbook sections (Author/SA) -

ERIC Accession Number-identification number sequentially assigned to documents as they are processed.

Sponsoring Agency--agency responsible for initiating, funding, and managing the research project.

Descriptors--subject terms which characterize substant. content. Only the major terms, preceded by an asterisk, are printed in the subject index.

Identifiers--additional identifying terms not found in the Thesaurus of ERIC Descriptors. Only the major terms, preceded by an asterisk, are printed in the subject index.

Informative Abstract

Abstractor's Initials

\*Index Code Numbers are used only within this index. They indicate chapter topic and are assigned sequentially. In the subject index the code numbers provide access points to the abstract in the main body of the index. Retrieval of documents by microfiche requires the ERIC Document (ED) number.



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## OBJECTIVES

	Collections of educational objectives and goal statements for mathematics concepts and skills, usually categorized by appropriate grade levels
OPER	ATIONS
	Materials for introducing and developing concepts and skills involving mathematical operations, including addition, subtraction, multiplication, and division
PERC	ENT/RATIO AND PROPORTION
	Teaching materials for mathematical proportion, ratios, and the development and application of percent
PLAN	NING
	Broad-level materials for planning mathematics lessons to fit long-range scope and sequence frameworks for mathematics curriculum
PROB	ABILITY AND STATISTICS
•	Curriculum guides, lesson plans, and student materials for teaching concepts of probability of statistics at a wide range of levels
PROBI	LEM SOLVING
	Materials useful in teaching both general and specific problem-solving skills in mathematics
TEST	ING
	Guides and materials useful for establishing school and classroom programs for measuring and assessing student achievement levels in mathematics
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	Curriculum guides, lesson plans, textbooks, and student materials which include more than two distinct mathematics topics. These materials are grouped according to the following classroom levels:
	K-3



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#### Document Resumes

#### **ALGEBRA**

0001 ED 183 402 Brotherton, Sheila And Others Boolean Algebra. Geometry Module for Use in a Mathematics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics, Den-

ver. Colo.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date—74 Grant—NSF-GW-7720

Note—68p.; For related documents, see SE 030 304-322; Contains light and broken type; Com-

puter print-outs marginally legible
Pub Type—Guides - Classroom - Learner (051) —
Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descripto. —Activities, Computer Oriented Pro-

grams, Electric Circuits, Geometric Concepts, Geometry, "Learning Laboratories, Logic, Mathematical Applications, "Mathematical Enrichment, "Mathematical Logic, Mathematics Curriculum, "Mathematics Instruction, Secondary Education, "Secondary School Mathematics. Worksheets

This module is recommended as an honors unit to Into module is recommended as an honors unit to follow a unit on logic. There are four basic parts: (1) What is a Boolean Algebra; (2) Using Boolean Algebra to Prove Theorems; (3) Using Boolean Algebra to Simplify Logical Statements; and (4) Circuit Problems with Logic and Boolean Algebra. Of these, sections 1, 2, and 3 are primarily written exercises. cises. Section 4 involves modeling problems on a circuit board. Some supplementary materials are included at the end of the module. An additional sec-tion on computer-extended Boolean Algebra appears at the end of the teacher's guide. (Author/MK)

0002 ED 180 755 Blose, Murray M. And Others Math 1715/1613 (PIPI): Algebra and Trigonome-

Oklahoma State Univ., Stillwater. Coll. of Engineering. Spons Agency—National Science Foundation,

Washington, D.C. Pub Date—Jan 72 Grant—NSF-GY-9310

Note-150p.; For related document, see SE 029

Pub Type— Guides · Classroom - Learner (051)

F7.RS Price · MF01/PC06 Plus Postage.

Descriptors—Audiovisual Aids, College Curriculum, "College Mathematics, Competency Based Education, "Higher Education, "Mastery Learning, "Mathematics Curriculum, Mathematics Tearning Dephalems "Proics Instruction, Probability, Problems, "Programed Instructional Materials, Self Evaluation, "Study G. Mes, Trigonometry

Identifiers--\*Functions (Mathematics)

This study guide, designed for use at Oklahoms State University, contains lists of activities for students to perform based on the "mastery of learning" concept. The activities include readings, problems, self evaluations, and assessment tasks. The units included are: Functions, Exponential and Logarithmic Functions, Trigonometric Functions, Polynomial Functions, Trigonometric Equations and Identities, Numerical Trigonometry, Combinations Polynomial Functions I Trigonometry, Combinations Functions Functional Publisher Combinations of Publisher Linear Alpha Company Numerical Publisher Numerical Publisher Numerical Publisher Numerical Publisher Numerical Publisher Numerical Publisher Numerical Publis torics, Probability, Linear Algebra, Complex Numbers, and Sequences. (MK)

0003 ED 180 752 Benjamin, Carl And Others College Algebra II.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date—[75] Grant NSF-GZ-2998

Gran. NSF-GZ-2998

Note. p.: For related documents, see SE 029
345-347; Colored pages may not reproduce well

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—"Algebra, "College Mathematics,
Criterion Referenced Testa, "Diagnostic Tests,

"Educational Objectives, Fractions, Higher Education, Number Systems, "Performance Criteria,
Set Theory Tests

Set Theory, Tests
Identifiers—"Equations (Mathematics)
Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in College Algebra II. Topics covered include: differencing and complements; real numbers; factoring; fractions; linear equations; exponents and radicals; complex numbers, relations and functions; quadratics; determinants; factorials, combinations and permutations; binomial theorem; summation motation; and progressions. (MK)

0004 ED 180 751

BD 180 751

Benjamin, Carl And Others

College Algebra I.

Spons Agency—National Science Foundation,
Washington, D.C.

Pub Date—[75]

Grant—NSF-GZ-2998

Note—123p.; For related documents, see SE 029
345-348; Colored pages may not reproduce well

Pub Type—Guides - Classroom - Learner (051)

EDRS Price - MF01/PC05 Plas Postage.

Descriptors—"Algebra, "College Mathematics,
"Criterion Referenced Tests, "Diagnostic Tests,
"Educational Objectives, Higher Education,
Inequalities, Mathematical Vocabulary, "Performance Criteria, Ratios (Mathematics), Set
Theory, Tests Theory, Tests

Identifiers—\*Equations (Mathematics)

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in College Algebra I. Topics covered include: sets; vocabulary; linear equations; inequalities; real numbers; operations, factoring; fractions; formulas; ratio, proportion, and variation; relations and Cartesian products; systems of equations; exponents; and quadratic equations. (MK)

ED 176 962

Mewborn, Ancel C. 15 vely, Wells !! A Programmed Course in Algebra.

Minnesota Academy of Science. Minneapolis. Spons Agency—National Science Foundation.
Washington, D.C.

Pub Date -69

Note—649p. Pub Type— Guides - Classroom - Learner (051)

Descriptors—"Algebra. "College Mathematics, Higher Education, "Mathematics Curriculum." Mathematics Instruction, "Mathematics Materialisms Mathematics Materialisms Materialisms Mathematics als. \*Number Systems. Programed Instructional Materials. Secondary Education. Set Theory, Textbooks

!dentifiers-- \*Functions (Mathematics)

This programed textbook consists of short sections of text interspersed with questions designed to aid the student in understanding the material. The eourse is designed to increase the student's understanding of some of the basic ideas of algebra. Some general experience and manipulative skill with respect to high school algebra is assumed. Emphasis is placed upon development of the logical structure of algebra. Chapter topics include: (1) sets, relations, and functions; (2) algebra of :eal numbers; (3) algebraic systems; (4) order in the real number system; (5) equations and inequalities; (6) absolute value; (7) completeness of the real number system; (8) natural numbers; (9) integers; (10) rational numbers; (11) complex numbers; (12) algebra of real functions; (13) polynomials; and (14) equivalence relations and groups. (MP)

0006 ED 176 956 Haag, V. H. And Others Introduction to Algebra (Part 2). Preliminary **Edition** 

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C. Pub Date-60

Note-240p.; For related document, see ED 160

Pub Type- Guides - Classroom - Learner (051)

EDRS Price - MF01/PC10 Plus Postage. Descriptors—\*Algebra, Curriculum, Grade 9, \*Instruction. Mathematics Education, "Number Concepts. Secondary Education. "Secondary School Mathematics. "Textbooks

Identifiers-Number Operations (Mathematics),

"School Mathematics Study Group
This is part two of a two-part SMSG algebra text
for ninth-grade students. The text was written for those students whose mathematical talent is underdeveloped. Chapter topics include the real numbers, addition of real numbers, multiplication of real numbers, properties of order, and subtraction and division for real numbers. (MP)

0007

ED 173 149

Allen, Frank B. And Others Mathematics for High School, Intermediate Mathematics (Part 3). Commentary for Teachers. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Agency-National Science Foundation, Washington, D.C. --60 Pub Date-

Note—158p.: For related documents, see SE 028 243 and ED 135 628: Con ains occasional light and broken type

Pub Type— Guides · Classroom · Teacher (052)
EDRS Price · MP01/PC07 Plus Postage.
Descriptors— Algebra, Curriculum, Curriculum
Guides, Instruction, Mathematics Education, "Number Concepts, Probability, Secondary Education, "Secondary School Mathematics
Identifiers—"School Mathematics Study Group.
"Vectors (Mathematics)

This is part three of a three-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to the exereises, and a set of illustrative test questions. Chapter topics include: (1) the system of vectors; (2) polar form of complex numbers; (3) sequences and series; (4) permutations; (5) combinations, and the binomial theorem; and (6) algebraic structures. (MP)

8000

ED 173 148

Aller, Frank B. And Others

Mathematics for High School, Intermediate Mathematics (Part 2). Commentary for Teachers. Preliminary Edition. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency-National Science Foundation.
Washington, D.C.

Pub Date—59 Note—193p.; For related documents, see SE 028 244 and ED 135 527-628; Contains occasional

Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Poctage.
Descriptors—\*Algebra. Curriculum. "Curriculum Guides, "Instruction. Mathematics Education, "Number Systems, Secondary Education, "Secondary School Mathematics ondary School Mathematics
Identifiers—\*Complex Numbers. \*School Math-

ematics Study Group

This is part two of a three-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to exercises, and suggested test questions. Chapter topics include quadratic equations, the complex number system, equations of the second degree, and systems of first degree equations. (MP)

ED 171 559 0009 ISS-Based Mathematics Program, Teachers Manual, Level 09, Curriculum.

Community School District 18, Brooklyn, N.Y. Spons Agency—New York State Education Dept.
Albany.: Office of Education (DHEW), Washington, D.C.

Pub Date-[79]

Pub Date—[79]
Note—37p.; For related document, see SE 027 740
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra. Course Descriptions, Curniculum Development, \*Curriculum Guides,
Grade 9, Guides, \*Mathematics Curriculum
Mathematics Education, \*Objectives, Secondary
Education, \*Secondary School Mathematics,
Teaching Guides
Identifiers—\*Instructional Support System
This publication is the teachers, manual, level 9

This publication is the teachers' manual, level 9, of the Instructional Support Systems (ISS) Program. which was developed by the Community School District 18 of New York. The curriculum was designed to fulfill the requirements established by the New York State Board of Regents for the Algebra I course. Two sequences of modules are suggested. for either a two-term or three-term course of study. Instructional objectives for five topics are included: (1) equations and inequalities; (2) verbal problems; (3) polynomials, factoring, and fractions; (4) graphing; and (5) radicals and trigonometry. (HM)

0010

ED 160 464

Blakeslee, David W. And Others Programed First Course in Algebra, Revised Form H. Teacher's Commentary. Unit 63.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C. Pub Date—65

Note—149p.: For related documents, see SE 025 140-142; Not available in hard copy due to marginal legibility of original document

ub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

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Descriptors—Algebra. Curriculum. \*Instruction.
Mathematics Education, \*Programed Instruction.
Secondary Education, \*Secondary School Mathematics. \*Teaching Guides
Identifiers—\*School Mathematics Study Group
This is a manual for teachers using SMSG high

school programed text materials in algebra. The commentary is organized into four parts. The first part contains a discussion of ways to use this programed text. The second and main part consists of a chapter by chapter commentary on the text. The third part is a listing of topics keyed to a list of supplementary references from the volumes of the "New Mathematical Library" (NML), which is a series of expository monographs produced by the School Mathematics Study Group and aimed at the level of maturity of the secondary school pupil. The fourth part contains suggested test items. (MP)

ED 160 462 Buck, R. Creighton And Others

Programed First Course in Algebra, Revised Form H, Studert's Text, Part II. Unit 61. Stanford Univ.. Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation, Washington, D.C. Pub Date-65

Note—599p.; For related documents, see SE 025-140-143; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010) EDRS Price - MF03 Plus Postage. PC Not Available from EDRS.

Descriptors- Algebra. Curriculum, Instructional Materials, Mathematics Education, \*Programed Instruction, Secondary Education, \*Secondary School Mathematics, \*Textbooks

Identifiers—\*School Mathematics Study Group This is part two of a two-part SMSG Programed Algebra Text for high school students. The general plan of the course is to build upon the student's experience with arithmetic. This part begins with factorization of positive integers and then develops the manipulative skills of fractions, exponents, rad:cals, and polynomials. The text then moves to more advanced topics including rational expressions, equivalent equations, and inequalities. Chapter topics include: factors and divisibility; fractions: exponents; radicals; polynomials and factoring; quadratic polynomials; dividing polynomials; rational expressions; truth sets of open sentences; the graph of a linear equation; graphs of other open sentences in two variables; systems of equations and inequalities: graphs of quadratic polynomials; and functions. Response sheets are contained in the separate "Student's Response Booklet." (MP)

0012 ED 160 461

Buck R. Creighton And Others
Programmed First Course in Algebra, Revised Form H, Student's Text, Part I, Unit 60. Stanford Univ., Calif. School Mathematics Study

Spons Agency - National Science Foundation, Washington, D.C. Pub Date-64

Note-445p.; For related documents, see SE 025 141-143; Not available in hard copy due to marginal legibility of original document Pub Type- Books (010)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors--\*Algebra, Curriculum, \*Instructional Materials, Mathematics Education. \*Programed Instruction. Secondary Education. \*Secondary School Mathematics, Textbooks

Identifiers \*School Mathematics Study Group

This is part one of a two-part SMSG Programed Algebra Text for high school students. The general plan of the course is to build upon the student's experience with arithmetic. The student is initially led to extract from his or her experience the fundamental properties of addition and multiplication. The text then introduces negative real numbers and extends the fundamental operations to develop the real number system. Chapter topics include: sets and the number line; numerals and variables; sentences; properties of operations; open sentences and English sentences: the real numbers; properties of addition; properties of multiplication; multiplicative inverse; properties of order, and subtraction and division. (MP)

0013 ED 160 416

Haag, V. H. And Others Introduction to Algebra. Teacher's Commentary. Part II, Unit 46. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date—65 Note—348p.; For related documents, see SE 025 036-038; Contains occasional light and broken type Pub Type-

- Guides - General (050)

EDRS Price - MF01/PC14 Plus Postage. Descriptors—\*Algebra, Curriculum, \*Grade 9, \*In-

struction. Mathematical Formulas. Mathematics Education. Number Concepts. Secondary Education. \*Secondary School Mathematics. \*Teaching Guides

Identifiers-Polynomials. \*School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG text materials for grade 9 students whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts. answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: (1) factors and exponents; (2) radicals; (3) polynomials: (4) rational expressions; (5) truth sets of open sentences; (6) truth sets and graphs of sent-ences in two variables: (7) systems of open sentences; (8) quadratic polynomials; and (9) functions.

0014 ED 160 415

Haag, V. H. And Others

Introduction to Algebra. Teacher's Commentary, Part I, Unit 45. Revised Edition. Itanford Univ., Calif. School Mathematics Study

Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-65

Note-342p.; For related documents, see SE 025 036-039; Contains occasional light and broken type Pub Type--- Guides - General (050)

EDRS Price - MF01/PC14 Plus Postage.

Descriptors-\*Algebra, Curriculum, \*Grade 9, \*Instruction. Mathematics Education, Number Concepts, Secondary Education, \*Secondary School Mathematics, Set Theory, \*Teaching Guides Identifiers—Mathematical Sentences, \*School

Mathematics Study Group
This is part one of a two-part manual for teachers

using SMSG text materials for grade 9 students whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts. answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include: (1) sets and the number line: (2) numerals. sentences, and variables; (3) open sentences and truth sets: (4) properties of operations: (5) open sentences and word sentences; (6) real numbers and the four basic operations; and (7) properties of order. (MN)

0015

ED 160 414

Haag. V. H. And Others Introduction to Algebra, Student's Text, Part II. Unit 44. Revised Edition.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-65

Note-445p.; For related documents, see SE 025 036-039; Contains light and broken type

Pub Type— Books (010)

EDRS Price • MF01/PC18 Plus Postage.

Descriptors—\*Algebra, Curriculum, \*Grade 9, \*Instructional Materials, Mathematical Formulas, Mathematics Education, Number Concepts, Secondary Education, \*Secondary School Mathematics. \*Textbooks

Identifiers- Polynomials. \*School Mathematics Study Group

This is part two of a two-part SMaG text in algebra for students whose mathematical talents are underdeveloped. Additional drill materials are included in this text and terminology is kept to a minimum. Chapter topics include: (1) factors and exponents; (2) radicals: (3) polynomials; (4) actional expressions: (5) truth sets of open sentences; (6) truth sets and graphs of sentences in two variables; (7) systems of open sentences, (8) quadratic polynomials; and (9) functions. (MN)

0016

ED 160 413

Haag V. H. . Others Introduction to Algebra, Student's Text, Part I, Urat 43. Revised Edition.

Stanford Univ., Calif. School Mathematics Stu/y

Spons Agency-National Science Foundation, Washington, D.C. Pub Date-65

462p.: For related documents, see SE 025 Note-037-039: Contains light and broken type Pub. Type—Books (010)

EDNS Price - MF01/PC19 Plus Postage.
Descriptors—\*Algebra, Curriculum. \*Grade 9. \*Instructional Materials, Mathematics Education. Number Concepts, Secondary Education. \*Secondary School Mathematics, Set Theory. \*Text-

Identifiers-Mathematical Sentences, Mathematics Study Group

This is part one of a two-part SMSG text in algebra for students whose mathematical talents are underdeveloped. Additional drill materials are included in this text and terminology is kept to a minimum. Chapter topics include: (1) sets and the number lines; (2) numerals, sentences, and variables; (3) open sentences and truth sets; (4) properties of operations; (5) open sentences and word sentences; (6) real numbers and the four basic operations; and (7) properties of order. (MN)

ED 143 558

Syer. Henry W., Ed. Supplementary and Enrichment Series: Algebraic Structr es.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation.
Washington, D.C.

Report No.—SMSG-SP-16

Pub Date-65

Note—37p.; Contains numerous light type Pub Type— Books (C10)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Algebra, \*Instructional Materials, Mathematics, Number Concepts, Secondary Education, \*Secondary School Mathematics. \*Textbooks

Identifiers-Group Theory, School Mathematics Study Group

This is one of a series of publications written to supplement the secondary school School Mathematics Study Group program. This booklet will be rost useful for enrichment at the eleventh and tyelfth grade levels. It treats algebraic structures as a'sstract mathematical systems and introduces such important ideas as group, non-abelian group, field. and subfield. Proofs are rigorous, but not tedious. Answers to the problems are found in the back of the book. As background, the reader needs to be familiar with the following sets of numbers: integers. rationals, reals, and complex numbers. (Author/RH)

2018 ED 143 549

Clarkson. Donald R., Ed. And Other Studies in Mathematics, Volume VIII. Concepts of Algebra. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-61 Note—471p.; For related documents, see SE 023 028-041

Pub Type— Books (010)
EDRS Price - MF01/PC19 Plus Postage.
Descriptors—\*Algebra. \*Inservice Education. Instructional Materials. \*Number Concepts. \*Section of the Publisher Concepts. ondary School Mathematics. \*Teaching Guides Identifiers—\*School Mathematics Study Group

This volume is designed to provide information for teachers and prospective teachers who will teach the basic concepts of algebra normally taught in grade 9. Each section of the book contains background information, suggestions for instruction, and problems. Sections in the book include: (1) Numerals and Variables; (2) Open Sentences and English Sentences; (3) The Real Numbers; (4) Properties of Order; and (5) Additive and Multiplicative Inverses. Answers to problems are at the end of the book. (RH)

0019

Haag, Vincent H.

Studies in Mathematics, Volume III. Structure of Elementary Algebra. Revised Edition. Stanford Univ., Calif. School Mathematics Study

ED 143 545

Spons Agency—National Science Foundation. Washington D.C. Pub Date-61

Note-233p.; For related documents, see SE 023 028-041

Pub Type— Books (010)

EDRS Price - MF01/PC10 Plus Postage.
Descriptors—\*Algebra, Inservice Education. \*In-

structional Materials. Resource Materials, Secondary Education. \*Secondary School Mathematics, Teacher Education. \*Teaching Guides. Textbooks Identifiers-\*School Mathematics Study Group

These materials are intended to explain the approach adopted by the writers of the SMSG text-book, First Course in Algebra. This book is not a ninth-grade textbook or teacher's commentary. Many of the ideas presented are too difficult for

most beginning students, but they are ideas which the author believes teachers should master. It is assumed that the teacher alread" masters these skills. Chapters included are: (1) Historical Background; (2) Language; (3) Structure of the Real Number System; (4) Sub-Systems of the Real Numbers; (5) Completeness of the Real Number System; and (6) Functions. The appendices include materials on infinite decimals, complex numbers, algebraic numbers, and answers to exercises. (RH)

ED 137 083

Greenfield, Donald R. Condensing Algebra for Technical Mathematics. Pub Date-76

Note—262p.; Ed.D. Dissertation. Nova University;
Appendices B and C have been removed due to copyright restrictions; Contains light and broken

type
Pub Type— Dissertations/Theses - Undetermined

Descriptors—\*Algebra, \*College Mathematics, Community Colleges. Curriculum, Doctoral Dissertations, Higher Education. Instructional Materials, Mathematics Education. \*Research, Technical Education. \*Technical Mathematics Mathematics

Twenty Algebra-Packets (A-PAKS) were developed by the investigator for technical education students at the community college level. Each packet contained a statement of rationale, learning objectives, performance activities, performance test and performance test answer key. The A-PAKS condensed the usual sixteen weeks of algebra into a six-week period. An experimental group of 25 technical mathematics students completed the A-PAKS. Each member of the "traditional" group was selected from the total population of students taking technical mathematics during the years 1970-1975. and was matched to a student in the experimental group based on percentile scores on the standard-ized Hundred-Problem Arithmetic Skills Test. At

the end of the A-PAK treatment, a standardized algebra test was administered to the experimental group and a student course-evaluation questionnaire was given. Results showed that the experimental group scored significantly higher (p. 05) on the algebra test than the "traditional" group. Results of the questionnaire showed that students liked the A-PAK procedure Appendices include the A-PAKS, along with copies of the tests and the questionnaire given to the students (DT)

ED 135 632

Ailen, Frank B. And Others

Introduction to Matrix Algebra. Teacher's Commentary, Unit 24

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 61 Note: 283p.: For related documents, sec SE 021 987-022 001 and ED 130 870-877

Pub Type - Guides - General (050)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Algebra. \*Curriculum. Elementary Secondary Education. \*Instruction. Mathematics Education. \*Matrices. \*Secondary School Mathenatics, \*Teaching Guides Identifiers - \*School Mathematics Study Group

This twenty-fourth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 23. For each of the chapters in Unit 23, a time allotment is suggested, the goals for that chapter are discussed, the mathematics is explained. some teaching suggestions are given, and answers to exercises are provided. In the appendix is a general discussion of the research exercises described in the appendix of the student's text, followed by the mathematical details for each of the four research exercises. (DT)

0022 ED 135 631

Allen. Frank B. And Others

Introduction to Matrix Algebra, Student's Text, Unit 23.

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C. Pub Date—61

Note -243p.; For related documents, see SE 021 987-022 002 and ED 130 870-877

Pub Type — Books (010)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Algebra, \*Curriculum, Elementary Secondary Education, Instruction, \*Instructional Materials, Mathematics Education, \*Matrices, \*Control of the Control of the C \*Secondary School Mathematics. \*Textbooks Identifiers—\*School Mathematics Study Group

Unit 23 in the SMSG secondary school mathematics series is a student text covering the following topics in matrix algebra: matrix operations, the algebra of 2 X 2 matrices, matrices and linear systems, representation of column matrices as geometric vectors, and transformations of the plane. Listed in the appendix are four research exercises in matrix algebra. (DT)

0023 ED 135 628

Allen, Frank B. And Others

Intermediate Mathematics, Teacher's Commontary. Part II, Unit 20. Stanford Univ., Calif. School Mathematics Study

Group. Spons Agency—National Science Foundation, Washington, D.C.

Pub Date-61

Note-319p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional tight type

Pub Type—Guides - General (050)
EDRS Price · MF01/PC13 Plus Postage.
Descriptors—\*Algebra, \*Curriculum, Elementary
Secondary Education, \*Instruction, Mathematics Education. Probability. \*Secondary School Mathematics. \*Teaching Guides. \*Trigonometry Identifiers—\*School Mathematics Study Group

This twentieth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 18. For each of the chapters in Unit 18. the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to exercises are provided, and sample text questions are included. (DT)



0024

Aller. Frank B. And Others

Intermediate Mathematics, Teacher's Commentary, Part I, Unit 19.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date---61

Note-550p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light type

Pub Type— Guides - General (050)
EDRS Price - MF02/PC22 Plus Postage.

Descriptors-\*Algebra, Analytic Geometry, \*Curriculum. Elementary Secondary Education. \*Instruction. Mathematics Education. Number Systems. \*Secondary School Mathematics. \*Teaching Guides Identifiers—\*School Mathematics Study Group

This nineteenth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 17. First, a time allotment for each of the chapters in Units 17 and 18 is given. Then, for each of the chapters in Unit 17, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to exercises are provided, and sample test questions are included. (DT)

Allen, Frank B. And Others

Intermediate Mathematics, Student's Text, Part FI. Unit 18.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington. D.C.

Pub Date-61

Note-424p.: For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains oceasional light and broken type

Pub Type- Books (010)

EDRS Price - MF01/PC17 Plus Postage.
Descriptors—\*Algebra, \*Curriculum, Elementary

Secondary Education, Instruction, Instructional Materials, Mathematics Education, Probability. \*Secondary School Mathematics, \*Textbooks, \*Trigonometry

Identifiers- \*School Mathematics Study Group Unit 18 in the SMSG secondary school mathematics series is a student text covering the following topics; logarithms and exponents; trigonometry; the system of vectors: polar form of complex numbers; sequences and series; permutations, combinations, and the binomial theorem; and algebraic structures. (DT)

ED 135 625

ED 135 626

Allen. Frank B. And Others Intermediate Mathematics, Student's Text, Part I.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington. D.C.

Pub Date-61

Note—469p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broken type

Pub Type- Books (010)

EDRS Price - MF01/PC19 Plus Postage.
Descriptors— Algebra, Analytic Geometry, \*Curriculum. Elementary Secondary Education. Instruction, \*Instructional Materials. Mathematics Education. Number Systems. \*Secondary School Mathematics, \*Textbooks

Identifiers-\*Functions (Mathematics), \*School Mathematics Study Group

Unit 17 in the SMSG secondary school mathematics series is a student text covering the following topics: number systems, coordinate geometry in the plane, the function concept and the linear function. quadratic functions and equations, complex number systems, equations of the first and second degree in two variables, systems of equations in two variables, and systems of first degree equations in three variables. (D1)

0027

ED 135 627

Allen. Frunk B. And Others

First Course in Algebra. Teacher's Commentary. Part II. Unit 12.

ED 135 620

Stanford Univ., Calif. School Mathematics Study

Spons Agency—National Science Foundation, Washington, D.C. Pub Date---61

Note—348p.: For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains light and broken type

Pub Type— Guides - General (050)
EDRS Price - MF01/PC14 Plus Postage.
Descriptors—\*Algebra. \*Curriculum. Elementary
Secondary Education. \*Instruction, Mathematics.
Education. \*Secondary School Mathematics.
\*Teschioc Cuid

Secondary
Education, \*Secondary
Teaching Guides
Secondary
Secondar This twelfth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 10. For each of the chapters in Unit 10 the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested. (DT)

ED 135 619

Allen, Frank B. And Others
First Course in Algebra, Teacher's Commentary,
Part I, Unit 11.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington. D.C.
Pub Date—61
Note—282p.: For related documents, see SE 021
987-022 002 and ED 130 870-877; Contains occa-

sional light type Pub Type— Guides - General (050)

Descriptors—"Algebra. "Curriculum. Elementary Secondary Education, "Instruction, Mathematics, Education. "Secondary School Mathematics. \*Teaching Guides
Identifiers—\*School Mathematics Study Group

This eleventh unit in the SMSG secondary school mathematics series is the teacher's commenciary for Unit 9. First a general overview of the entire FIRST COURSE IN ALGEBRA (Units 9 and 10) is provided. Then, a time allotment for each of the chapters in Unit 9 is suggested. For each of the chapters in Unit 9, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are

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suggested. (DT)

ED 135 618

Allen, Frank B. And Others
First Course in Algebra, Studer 's Text, Part II.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date—61 Note—311p.: For related documents, see SE 021 987-SE 022 002 and ED 130 870-877; Contains occasional broken type

Pub Type— Books (010)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—\*Algebra, \*Curriculum. Elementary Secondary Education. Instruction. \*Instructional Materials. Mathematics Education. \*Secondary School Mathematics, \*Textbooks Identifiers—\*School Mathematics Study Group Unit 10 in the SMSG's secondary school mathematics.

ematics series is a student text covering the following topics in Algebra 1: factors and exponents, radicals, polynomial and rational expressions, truth sets of open sentences, graphs of open sentences in two variables, systems of equations and inequalities. quadratic polynomials, and functions. (DT)

Allen, Frank B. And Others First Course in Algebra, Student's Text, Part I, Unit 9.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation.
Washington, D.C.

Pub Date—61 Note—259p.: For related documents, see SE 021 988-SE 002 002 and ED 130 870-877; Contains

Pub Type Books (010)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors - Algebra. "Curriculum. Elementary
Secondary Education. Instruction. "Instructional Materials, Mathematics Education, Number Systems, \*Secondary School Mathematics, \*Text-

Identifiers - \*School Mathematics Study Group Unit 9 in the SMSG's secondary school mathematics series is a student text covering the follow ing topics in Algebra I: sets and the number line, numerals and variables, sentences and properties of operations, open sentences and English sentences. the real numbers, properties of addition, properties of multiplication, properties of order, and subtraction and division for real numbers. (DT)

0031

ED 123 066

Cosler. Norma. Ed. Individualized Math Problems in Algebra. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Note—13p.: For related documents, see SE 020 628-648

Available from-Continuing Education Publications, P.O. Box 1491, Portland, Oregon 9720?

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.
Descriptors—\*Algebra, Individualized Instruction. \*Instructional Materials, Mathematical Applications. Mathematics Education. \*Problem Sets. Secondary Education. \*Secondary School Mathematics. \*Vocational Education Identifiers - \*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic, and contains problems related to diverse vocations. Solutions are provided for all problems. Problems presented in this package concern ratios used in food processing, gear ratios in automobiles and electronic circuitry. The electronics proclems involve

complex numbers. (SD)

ED 098 063

Holland Bill

0032

Learning Activity Package. Algebra 124, LAPs 46-55

Sinety Six High School, S. C.

Pub Date--[73̃]

Pub Date—[73]
Note—[30p.; See ED 069 505 for related document Pub Type—Guides - General (050)
EDRS Price - MF01/PC06 Plus Postage.
Descriptors—\*Algebra. Curriculum. \*Individualized Instruction. \*Instructional Materials.
\*Learning Modules. Mathematics Education. Objectives. Probability, \*Secondary School Mathematics. Statistics. Teacher Developed Materials. Teaching Guides. \*Trigonometry. Units of Study A series of 10 teacher-prepared Learning Activity

A series of 10 teacher-prepared Learning Activity Packages (LAPs) in advanced algebra and trigonometry, these units cover absolute value, inequalities, exponents, radicals, and complex numbers; functions; higher degree equations and the deriva-tive; the trigonometric functions; graphs and applications of the trigonometric functions: sequences and series; permutations, combinations, and probability: descriptive statistics; special theorems and functions; and matrices and vectors. The units each contain a rationale for the material being covered; lists of behavioral objectives: a list of reading assignments, problem sets, tape recordings, and filmstrips that accompany the unit; a student self-evaluation problem set; suggestions for advanced study; and references. (DT)

ED 098 062 Evans Diane

Learning Activity Package. Algebra 103-104. LAPs 23-33.

Ninety Six High School, S. C.

Pub Date -- [73]

Pub Date - [73]
Note-190p.: See ED 069 504 for related document
Pub Type- Guides - General (050)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors - Algebra. Analytic Geometry. Curriculum, \*Individualized Instruction, \*Instructional Materials, \*Learning Modules. tional Materials, \*Learning Modules, Mathematics Education, Number Systems, Objectives, Probability, \*Secondary School Mathematics. Teacher Developed Materials. Teaching Guides. Units of Study



ED 135 617

This set of 11 teacher-prepared Learning Activity Packages (LAPs) in intermediate algebra covers number systems; exponents and radicals; polynomials and factoring; rational expressions; coordinate geometry; relations, functions, and inequalities; quadratic equations and inequalities; Quadratic functions; systems of equations and inequalities; complex numbers, and probability. Each unit contains a rationale for the material being covered; a list of behavioral objectives: a list of resources including texts (with reading assignments and problem sets specified), tape recordings, commercial games, filmstrips, and transparencies; a problem set for student self-evaluation; suggestions for advanced study; and references. (DT)

0034

ED 098 061

Evans, Diane

Learning Activity Package, Algebra 93-94, LAPs 12-22.

Ninety Six High School, S. C.

Pub Date-[73]

Note-164p.; See ED 069 504 for related document Pub Type -- Guides - General (050) EDRS Price - MF01/PC07 Plus Postage. Descriptors -- Algebra. Analytic Geometry, Cur-

Jescriptors - "Algebra, Analytic Geometry, Curriculum, "Individualized Instruction, "Instructional Materials, "Learning Modules, Mathematics Education, Number Systems, Objectives, "Secondary School Mathematics, Set Theory, Teacher Developed Materials, Teaching Guides, Units of Study

A set of 11 teacher-prepared Learning Activity Packages (LAPs) in beginning algebra, these units cover sets, properties of operations, operations over real numbers, open expressions, solution sets of equations and inequalities, equations and inequali-ties with two variables, solution sets of equations with two variables, exponents, factoring and polynomials, functions, and equations and their applications. Each unit contains a rationale for the material; a list of behavioral objectives; a list of resources including texts (with reading assignments and problem sets specified), tape recordings, commercial games, filmstrips, and transparencies; a problem set for student self-evaluation, suggestions for advanced study; and references. (DT)

ED 093 705

Crawford, Glenda Algebra 2n, Mathematics (Experimental): 5216.-

Lade County Public Schools, Miami, Fla. Pub Date-72

Note-18p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are ED 084 161 and 162 and SE 018 078

Pub Type— Guides - General (050)
EDRS Price - MF01/PC01 Plus Postage
Descriptors—Algebra, Behavioral Ob

Objectives. \*Curriculum. Instruction. Mathematics Educa-tion. Number Concepts. \*Objectives, \*Probabil-ity, \*Secondary School Mathematics, \*Teaching Guides. Tests

Identifiers- Quinmester Program, Sequences (Mathematics)

The sixth in a series of six guid-books on minimum course content for second-year algebra, this booklet presents an introduction to sequences, series, permutation, combinations, and probability. Included are arithmetic and geometric progressions and problems solved by counting and factorials.

Overall course goals are pecified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are included. Pre and posttests are also given. together with answer keys. (JP)

0036

\* ED 093 704

Crawford, Glenda

Algebra 2s. Mathematics (Experimental): 5216.24.
Dade County Public Schools, Miami. Fla. Pub Date-72

Pub Date—72

Note—22p.: An Authorized Course of Instriction for the Quinmester Program. Related docur. ents are ED 084 161 and 162 and SE 018 079

Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—\*Algebra, Behavioral Objectives, \*Curriculum, Graphs, Instruction, Mathematics, \*Mathematics, \*Gueation, Mathematics, \*Teaching Guides, Tests

Identifiers—Complex Numbers \*Ouismester Res

Identifiers-Complex Numbers, \*Quinmester Pro-

gram
The fourth in a series of six guidebooks on minimum course content for second-year algebra, this

booklet covers linear and quadratic relations, aboulute value, graphing complex numbers, determinants and matrices, graphing quadratic relations, and solving systems of I near and quadratic equa-tions. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are provided. A sample positiest is included along with a 13-item bibliography. (JP)

ED 090 022

Thompson, Russ Fuller, Albert Algebra I, Package 03-11, Systems of Open Sentences in Two Variables.

Arnold Public Schools, Nebr.
Spons Agency – Bureau of Elementary and Seconcary Education (DHEW OE), Washington, D.C. Pub Date -- 72

Note -48p.; For related documents, see SE 017 553

EDRS Price - MF01/PC02 Plus Postage.

Descriptors -- Algebra, Grade 9, Graphs, Individualized Instruction, "Instructional Materials, Objectives. Problem Solving, "Secondary School Mathematics, "Teaching Guides, "Tests

Identifiers - Elementary Secondary Education Act Title III, Equations (Mathematics)

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are in-cluded for each topic covered. The work for this package centers on solution techniques for systems of equations in two variables and the application of these techniques for solving verbal problems. This work was prepared under an ESEA Title III contract. (JP)

ED J90 021

Thompson. Russ Fuller. Albert Algebra I. Package 03-10. Functions, Relations. and Graphs.

Arnold Public Schools, Nebr

Spons Agency—Bureau of Elementary and Second-ary Education (DHEW/OE), Washington, D.C. Pub Date -72

Note—91p.: For related documents, see SE 017 553 through 573 and SE 017 575 EDRS Price - MF01/PC04 Plus Postage.

Descriptors—"Algebra, Analytic Geometry, Grade 9, Graphs, Individualized Instructional Materials, Objectives, "Secondary School Mathematics, "Teaching Guides, "Tests Identifiers—Elementary Secondary Education Act

Title III. Equations (Mathematics), \*Functions (Mathematics)

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade kebra and basic mathematics students. Materials tten for the program are to be used with audiisual lessons recorded on tanh cassettes. For an valuation of the program see al. 086 545. In this guide, the teacher is provided with objectives for a given topic area and guided to materials written for a given topic. Three short criterion tests are in-cluded for each topic covered. The work in this package centers on linear functions and their graphs. Problems whose solutions require the use of direct or inverse variation are presented. This work was prepared under an ESEA Title III contract. (JP)

0039

ED 090 020

Thompson. Russ Fuller, Albert
Algebra I, Package 03-09. Using Fractions.
Arnold Public Schools. Nebr.
Spons Agency—Bureau of Elementary and Sccond-

ary Education (DHEW/OE), Washington, D.C. Pub Date-72

Pub Date—72
Note—32p.; For related documents, see SE 017 553
through 572, SE 017 574 and 575
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Algebra, Fractions, Grade 9, Individualized Instruction, Inequalities, \*Instruc-tional Materials, Objectives, Problem Solving, "Secondary School Mathematics, "Teaching Guides, Tests Identifiers—Algebraic Fractions, Elementary Se-\*Teaching

condary Education Act Title III

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audi-

ovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques are presented in this package for solving equations and mequalities constructed with algebraic tractions. This work was prepared under an FSFA little III contract (JP)

0040

ED 090 019

Thompson, Russ - Fuller, Albert

Algebra 1, Package 03-08, Operations with Frac-

Arnold Public Schools, Nebr

Spons Agency Bureau of Elementary and Secondary Education (DHEW OF), Washington, D.C. Pub Date

Pub Date 2 Services of the Pub Date 69p. For related documents, see 8E 017 583 through 571 and 8E 017 575 through 575 EDRS Price - MF01 Pt 03 Plus Postage. Descriptors - Algebra. Fractions. Grade 9. In-

dividualized Instruction, \*Instructional Materials, Objectives, \*Secondary School Mathematics, \*Teaching Guides, \*Tests

Identifiers Algebraic Fractions, Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the rogram are to be used with audi-ovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The content of this package centers on work with the ratio of two polynomials (fractions). Techniques for manipulat-ing and simplifying algebraic fractions are presented. This work was prepared under an ESEA Title III contract (JP)

ED 090 018

Thompson, Russ Fuller, Albert Algebra I, Package 03-07, Special Products and Factoring.

Arnald Public Schools, Nebr.

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D C Pub Date 71

Pub Date 12 Note 58p; For related documents, see SE 017 553 through 570 and SE 017 572 through 575 EDRS Price - MF01 PC03 Plus Postage. Descriptors "Algebra, Grade 9, Individualized In-

struction. \*Instructional Materials. Objectives.
\*Secondary School Mathematics. \*Teaching Guides. \*Tests

Identifiers Elementary Secondary Education Act Title III

This teacher guide is part of the materials pr pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audi-ovisual assons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques for factoring polynomials are presented in this package. This work was prepared under an ESEA Title III contract. (JP)

ED 090 017

Thompson, Russ Fuller, Albert
Algebra I. Package 63-06, Working with Polynomials.

Arnold Public Schools, Nebr

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date 72

Note—57p.; For related documents, see SE 017 553 - through 569 and SE 017 571 through 575 EDRS Price - MF01/PC03 Plus Postage.

Descriptors "Algebra, Grade"), Individualized Instruction, "Instructional Materials, Mathematical Machine Number Concepts in Materials. Vocabulary, Number Concepts, Objectives, \*Sec-ondary School Mathematics, \*Teaching Guides, Tests

Identifiers Elementary Secondary Education Act Title III. Polynomials Exponentiation (Mathematics).

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials



written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Work with polynomials is presented in this package. Polynomials are added, subtracted and multiplied together. Negative exponents and zero as an exponent are introduced together with rules for operating with exponential notation. This work was prepared under an ESEA Title III contract. (JP)

ED 090 016

Thompson, Russ Fuller, Albert

Algebra I, Package 03-05, Solving Inequalities and Problems.

Arnold Public Schools, Nebr.

Spons Agency-Bureau of Elementary and Sec ary Education (DHEW/OE), Washington, D ( Pub Date-72

Note—46p.: For related documents, see SE 017 553 through 568 and SE 017 570 through 575

EDRS Price - MF01/PC02 Plus Postage.
Descr. ptors—"Algebra, Grade 9, Individualized Instruction. "Inequalities, "Instructional Materials.
Objectives, Problem Solving, "Secondary School Mathematics, "Teaching Guides, Tests

Id-ntifiers-Elementary Secondary Education Act Title III

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Techniques for solving inequalities are presented in this package. This work was prepared under an ESEA Title III contract. (JP)

0044

ED 090 015

Thompson. Luss Fuller. Albert Algebra I, Package 03-04, Solving Equations and Problems.

Arnold Public Schools, Nebr.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note-42p.; For related documents; see SE 017 553

Note—42p.; For related documents; see SE 017 553 through 567 and SE 017 569 through 575 EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra, Grade 9, Individualized Instruction. \*Instructional Materials. Objectives. Problem Solving. \*Secondary School Mathematics. \*Teaching Guides. \*Tests

Identifiers-Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audi-ovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are inchilded for each topic covered. Techniques for solving algebraic equations are presented in this package. This work prepared under an ESEA Title III contract. (JP)

0045

ED 090 014

Thompson, Russ Fuller, Albert Algebra I, Package 03-03, Addition and Multiplication of Real Numbers.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note—45p.; For related documents, see 017 553 through 566 and SE 017 568 through 575 EDRS Price - MF01/PC02 Plus Postage. Descriptors—Addition, "Algebra, Deduction.

Grade 9. Individualized Instruction. "Instruc-tional Materials, Mathematical Concepts. Multi-plication, Number Concepts, Objectives. "Secondary School Mathematics, "Teaching Guides, "Tests

Ider.tifiers-Axiomatics, Elementary Secondary Education Act Title III
This teacher guide is part of the materials pre-

an individualized program for ninth-grade

algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. Properties of real numbers are developed through a set of axioms in this package. This work was prepared under an ESEA Title III contract. (JP)

ED 090 013

Thompson. Russ Fuller. Albert Algebra I, Package 03-02. The Language of Alge-

Arnold Public Schools, Nebr.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note—32p.: For related documents, sec SE 017 553

through 565 and SE 017 567 through 575
EDRS Price • MF01/PC02 Plus Postage.
Descriptors—\*Algebra, Grade 9, Individualized Instruction. \*Instructional Materials, Mathematical Concepts, Mathematical Vocabulary, Objectives, \*Secondary School Mathematics. Symbols (Mathematics). \*Teaching Guides. \*Tests

Identifiers-Elementary Secondary Education Act Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials wreten for a given topic. Three short criterion tests are included for each topic covered. The content of this package centers on the language of algebra. The concept of a variable is developed and solution sets are found for simple equations. Provided is practice in the use of exponents and quantifiers. This work was prepared under an ESEA Title III contract. (JP)

ED 090 012

Thompson. Russ Fuller. Alber: Algebra I, Package 93-61, Numbers and Sets. Arnold Public Schools, Nebr. Spons Agency—Bureau of Elementary and Second-

ary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note-41p.; For related documents, see SE 017 553 through 564 and SE 017 566 through 575

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra, Grade 9, Individualized Instruction. \*Instructional Materials. Number Concepts.

Objectives. \*Secondary School Mathematics, Set Theory, Symbols (Mathematics), \*Teaching Guides, \*Tests

Identifiers-Elementary Secondary Education Act

Title III

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The content of this package includes number and set concepts. The number line is used to picture sets of numbers and to develop numbers concepts. This work was prepared under an ESEA Title III contract. (JP)

0048

ED 086 549

Baker. Bruno B., Ed. Introduction to High School Mathematics, Grade 9. Course 2.

New York State Education Dept., Albany, Bureau of Secondary Curriculum Development, Pub Date—70

Note-790

Note-799.

EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Algebra, Basic Skills, Curriculum,

"Curriculum Guides, "Geometric Concepts,
Grade 9, "Number Concepts, Probability,
"Remedial Mathematics, "Secondary School Mathematics, Statistics

This guide outlines the curriculum for a ninthyear mathematics course for students not prepared to cope with the usual first-year algebra course. It is intended to provide personal relevance for these students by including supplementary units on prob-

ability and statistics, slide rule use flow charting and use of calculators, consumer mathematics informal geometry and mathematical reasoning. The major goal of the course is to develop mathematics skills and competencies which will ensure student success in algebra. The unit topics for this purpose are: graphing; number bases, set of integers, rational numbers, metric geometry, and ratio, proportion, and percent (JP)

0049

ED 084 162

Ellis, June

Algebra 2r. Mathematics (Experimental): 5216.23. Dade County Public Schools, Miami, Fla. Pub Date 72 Pub Date

Note: 15p., An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01, PC01 Plus Postage.

Descriptors \*Algebra, Behavioral Objectives, \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics. \*Teaching Guides. Tests

Identifiers - \*Quinmester Program

The third in a series of six guidebooks on minimum course content for second-year algebra, this booklet covers relations, functions, and solving and graphing linear equations, linear inequalities, systems of equations, and systems of inequalities. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives. are given. A sample posttest is included along with a 13-item bibliography. For other booklets in this series, see SE 017 026. (DT)

0050 ED (34 161

Ellis June

Algebra 2P. Mathematics (Experimental): 5216.-

Dade County Public Schools, Miami, Fla.

Pub Date: 72

Note -26p.: An Authorized Course of Instruction for the Ouinmester Prograin

EDRS Price • MF01/PC02 Plus Postage.
Descriptors \*Algebra. Behavioral Objectives. \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematies, \*Truching Guides, Tests

Identifiers -- \*Quinmester Program

This is the first of six guidebooks on minimum course content for second-year albebra. A survey of the real and complex number systems, solving linear equations and inequalities in one variable, and operations with polynomials are covered in this booklet Course goals are stated, a course outline is provided. performance objectives are specified, and textbook references keyed to the performance objectives are given. Sample pretest and posttest items are included, along with a bibliography of 16 references. For other booklets in the second-year algebra series. see SE 017 027. (DT)

ED 081 642

Strachan. Florence

Algebra 1r. Mathematics (Experimental): 5215.13. Dade County Public Schools, Miami, Fla Pub Date 71

Note - 22p.: An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors -- "Algebra, Behavioral Objectives, \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics. \*Teaching Guides. Tests

Identifiers - Quinmester Program

This third of six guidebooks on minimum course content for first-year algebra includes work with laws of exponents; multiplication, division, and factoring of polynomials; and fundamental operations with rational algebraic expressions. Course goals are stated, performance objectives listed, a course outline provided, testbook references specified which are keyed to the course outline, and teaching strategies suggested. Pretest and posttest items are included, plus a list of three references. For other booklets in this series, see ED 067 296, ED 067 283, ED 067 284, SE 016 504, and SE 016 505. (DT)

0052 ED 080 364 Tingle. H. Burton Algebra [Student's Individualized Career Source

Package). Sahuarita High School District 130, Ariz.

Pub Date—May 72 Note—212p.

EDRS Price - MF01/PC09 Plus Postage.

EDRS Price • MFULLY COVERING STATES CONTROLLING Guides, \*Instructional Materials. Mathematics Education Rational Numbers. \*Secondary Education. Rational Numbers. \*Secondary School Mathematics. Teacher Developed Materials. Units of Study. \*Worksheets

This is a volume of teacher-developed units to supplement the textbook in a first-year algebra course. The units consist mainly of statements of objectives and studen, worksheets with some examples and references to the textbook given as aids Major topics covered are basic operations wit signed rational numbers and with polynomials, factorization of natural numbers and polynomials, solution of first and second degree equations, graphing, and radicals. Related volumes in the series are SE 016 615, SE 016 616, and SE 016 618. (LS)

ED 079 128

Weathers Muriel Algebra la, Mathematics (Experimental): 5215.16. Dade County Public Schools. Miami. Fla. Pub Date--71

Note-22p., An Authorized Course of Instruction

Note—22p.. An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors— Algebra. Behavioral Objectives.

Curriculum. Instruction. Mathematics Education.
 Objectives. Secondary School Mathematics.
 Teaching Guides, Tests

Identifiers— Quinmester Program

This is the last of six guidebooks setting minimum course content for first-year algebra; it covers alge-

course content for first-year algebra; it covers algebraic and graphic solutions to systems of equations, relations and functions, and variation. After course goals are stated and performance objectives listed, a course outline, textbook references, and teaching suggestions are given. Pretest and posttest items are included along with an annotated bibliography of seven references. For other booklets in this algebra series, see ED 067 283. ED 067 284. ED 067 296. and SE 016 504. (DT)

ED 079 127

Hirigoyen. Hector Algebra lt, Mathematics (Experimental): 5215.15. Dade County Public Schools, Miami, Fla.

Pub Date-71

Note—16p.: An Authorized Course of Instruction for the Quinmester Program EDRS Price - MF01/PC01 Plus Postage. Descriptors—\*Algebra, Behavioral Objectives. Curriculum. Instruction. Mathematics Education, \*Objectives. \*Secondary School Mathematics. \*Treschief Christof Total

\*Teaching Guides. Tests Identifiers—\*Quinmester Program
This is the fifth of six guidebooks on minimum
This is the fifth of six guidebooks on minimum course content for first-year algebra; it includes operations with radicals, solutions of equations involving radicals or rational expressions, the distance formula, slope, and the slope-intercept form of the equation of a line. Course goals are stated, performance objectives listed, textbook references given. and teaching strategies suggested. Pretest and post-test items are included, plus an annotated list of three references. For other booklets in this set, see ED 067 283, ED 067 284, ED 067 296, and SE 016 505. (DT)

0055

ED 079 126

Algebra ld. Mathematics (Experimental): 5215.24. Dade County Public Schools, Miami, Fla. Pub Date-71

Note-30p.; An Authorized Course of Instruction

Note—30p.: An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Algebra, Behavioral Objectives.

Curriculum, Graphs, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers—\*Quinmester Program

This suidebook on minimum course content for

This guidebook on minimum course content for beginning algebra covers graphing, the distance formula, slope, the slope-intercept form of the equation of a straight line, algebraic and graphic solutions to systems of equations, functions, and variation. Overall goals for the course are stated; performance objectives for each unit, a course outline, references to state-adopted texts, and teaching suggestions are

given. A pretest and posttest are included, plus an annotated list of seven references. (DT)

0056 ED 075 216

Programmed Math Continuum. Level One. Algebra, Volume 15.

New York Inst. of Tech., Old Westbury Spons Agency Office of Education DHEW), Washington, D.C. Bureau of Research, Bureau No.—BR-8-0157

Pub Date--[73] Contract--OEC-0-8-080157-3691(010)

Note-216p.

EDRS Price - MF01/PC09 Plus Postage.
Descriptors—"Algebra, "Computer Assisted Instruction, Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education. Programed Instruction. gramed Instructional Materials. \*Secondary School Matnematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 15: solving digit, movern, and age problems, solving problems involving fractions, rational numbers, determining roots of numbers, and irrational numbers. Reading and homework assignments are taken from the text "Modern Algebra - Book 1" by Dolciani. (Related documents are SE 015 854 - SE 015 869.) (DT)

0057 ED 075 215 Programmed Math Continuum. Level One. Alge-

bra, Volume 14. New York Inst. of Tech.. Old Westbury.

Spons Agency—Office of Education (DHEW),
Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)

Note-190p.

EDRS Price - MF01/PC08 Plus Postage.
Descriptors—\*Algebra, \*Computer Assisted Instruction. Curriculum. Indiv. jualized Instruction. \*Instruction. Instructional Naterials. Mathematies Education, Programed sistruction. Programed Instructional Materials. \*Secondary School Mathematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 14: methods of solving systems of equations, graphing pairs of inequalities, verbal problems using two variables, and determining the equation of a line. Reading and homework assignments are taken from the text "Modern Algebra - Book 1" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0058 ED 075 214 Programmed Math Continuum, Level Onc. Alge-

New York Inst. of Tech., Old Westbury. Spone Agency Office of Education (DHEW). Washington, D.C. Bureau of Research. Bureau No.—BR-8-0157

Pub Date—[73] Contract—OEC-0-8-080157-3691(010) Note—181p.

EDRS Price - MF01/PC08 Plus Postage.
Descriptors—\*Algebra. \*Computer Assisted In-

struction. Curriculum. Individualized Instruction. \*Instruction. Instructional Materials. Mathematics Education. Programed Instruction, \*Programed Instructional Materials, \*Secondary School Mathematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 13: open sentences in two variables, coordinates in a plane. graphing linear equations, slope of a line, slope-intercept form of an equation, graph of an inequality in two varials, and graphic solution of a system of equations. Reading and homework assignments are taken from the text "Modern Algebra - Book 1" by Dolciani. (Related documents are SE 0:5 854 - SE 015 870.) (DT)

0059 ED 075 213 Programmed Math Continuum, Level One. Algebra. Volume 12.

New York Irst of Tech., Old Westbury Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research

Bureau No. BR-8-0157 Pub Date [73] Contract OEC-0-8-080157-3691(010)

Note 1920.

EDRS Price - MF01 PC08 Plus Postage.

Descriptors \*Algebra, \*Computer Assisted Instruction, Curriculum, Individualized Instruction, \*Instruction, Instructional Materials, Mathematies Education. Programed Instruction. Programed Instructional Materials, \*Secondary School Mathematics, \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is in ended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 12: solving investment, percent mixture, sork, and motion problems, and solving fractional equations. Reading and homowork assignments are taken from the text "Modern Algebra - Book I" by Doleran: (Related documents are SE 015 654 + SE 015 870) (DT)

0060 ED 075 212 Programmed Math Continuum, Level One, Algebra, Volume 11.

New York Inst. of Tech., Old Westbury

Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research

Bureau No. - BR-8-0157 Pub Date [73] Contr. - OEC-0-8-080157-3691(010)

. Op. Note

EDRS Price - MF01 PC09 Plus Postage.

Descriptors--- Algebra. \*Computer Assisted Instruction, Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, \*Programed Instructional Materials, \*Secondary School Mathematics, \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume Il: multiplying and dividing fractions involving factoring combining fractions with equal and with unequal denominators, mixed expressions, complex fractions, and solving open sentences having fraction coefficients. Reading and homework assignments are taken from the text "Modern Algebra. Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

ED 075 211 Programmed Math Continuum, Level One. Algebra. Volume 10.

New York Inst. of Tech., Old Westbury.

Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No.---BR-8-0157

Pub Dz-e--[73] Contract--OEC-0-8-080157-3691(010)

Note-208p.

EDRS Price - MF01/PC09 Plus Postage.

Descriptors—\*Algebra, \*Computer Assisted Instruction. Curriculum, Individualized Instruction. \*Instruction. Instructional Materials. Mathematics Education, Programed Instruction, \*Programed Instructional Materials. School Mathematics, \*Textbooks \*Secondary

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-an; wer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 10: solving equations having factors whose product is zero; solving polynomial equations by factoring; use of factoring in problem solving; and reducing, multiplying, and dividing algebraic fractions. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 through SE 015 870.) (DT)



0062 ED 075 210 med Math Continuum, Level One. Alge-Progra bra, Volume 9.

New York Inst. of Tech.. Old Westbury. Spons Agency—Office of Education (DHEW).
Washington, D.C. Bureau of Research.
Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)

Note-170p.

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—\*Algebra, \*Computer Assisted Instruction. Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, Programed Instructional Materials, Secondary School Mathematics, \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system: The following topics are covered in Volume 9: factoring a trinomial square, sight multiplication of binomials, factoring the product of a binomial sum or difference, general factoring of a quadratic, and combining types of factoring. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

ED 075 209 Programmed Math Continuum, Level One, Algebra, Volume 8.

New York Inst. of Tech., Old Westbury. Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No. — BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)

-146p.

EDRS Price - MF01/PC06 Plus Postare.
Descriptors—\*Algebra, \*Computer Assisted Instruction, Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, Programed Instructional Materials, School Mathematics, Textbooks Secondary

This programed instruction study guide is one of a series that form a first-year algebra course. Struc-tured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 8: dividing a polynomial by a monomial and by a polynomial, factoring, identifying common factors. multiplying sum and difference of two numbers, factoring differences of two squares, and squaring a binomial. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0064 ED 075 208 Programmed Math Continuum, Level One, Algebra, Volume 7.

New York State Education Dept., Albany, Bureau for Mentally Handicapped Children.

Spons Agency—Office of Education (DHEW).

Washington, D.C. Bureau of Research.

Bureau No.—BR-8-0157

Pub Date—[73].

Contract—OEC-0-8-080157-3691(010)

-146p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors-\*Algebra. \*Computer Assisted Instruction, Curriculum. Individualized Instruction.
\*Instruction, Instructional Materials, Mathematics Education. Programed Instruction. \*Programed Instructional Materials, School Mathematics, \*Textbooks \*Secondary

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 7: products and quotients of powers, multiplying polynomials by monomials and by polynomials, and problems involving area. Reading and homework assignments are taken from the text "Modern Algei ook I" by Dolciani. (Related documents are SE 015 854 through SE 015 870.) (DT)

ED 075 207 0065 Programmed Math Continuum, Level One, Algebra. Volume 6.

New York Inst. of Tech., Old Westbury.

Spons Agency—Office of Education (DHEW).
Washington, D.C. Bureau of Research.

Bureau No .- BR-8-0157

Pub Date—[73] Contract—OEC-0-8-080157 3691(010)

Note-207p.

EDRS Price - MF01/PC09 Plus Postage.
Descriptors—\*Algebra, \*Computer Assisted Instruction, Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, Programed Instructional Materials, Secondary chool Mathematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured on a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 6: problem solving, including problems on consecutive integers, angles, uniform motion, and mixtures; and adding and subtracting polynomials. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

ED 075 206 Programmed Math Continuum, Level One. Alge-

bra, Volume 5. New York Inst. of Tech., Old Westbury. Spons Agency -- Office of Education (DHEW),
Washington, D.C. Bureau of Research.

Bureau No.—BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(013)
Note—212p.

EDRS Price - MF01/PC09 Plus Postage.

Descriptors-\*Algebra. \*Computer Assisted Instruction. Curriculum. Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, \*Programed Instructional Materials, \*Secondary School Mathematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume operations on directed numbers, transforming equations, and properties of inequalities. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

ED 075 205 Programmed Math Continuum. Level One, Algebra, Volume 4.

New York Inst. of Tech., Old Westbury. Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau-No.-BR-8-0157

Pub Date—[73] Contract—OEC-0-8-080157-3691(010) Note-209p.

EDRS Price - MF01/PC09 Plus Postage.

Descriptors-\*Algebra. \*Computer Assisted Instruction. Curriculum. Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction. \*Programed Instructional Materials. \*Secondary gramed Instructional Materials.
School Mathematics. \*Textbooks

This programed instruction study guide is one of

a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 4: combining terms, equations with variables in both members, directed numbers, comparing numbers. addition on the number line, opposites, and absolute value. Reading and homework assignments are taken from the text "Modern Algebra - Book 1" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

0068 FD 075 204 Programmed Math Continuum, Level One, Alge-

bra, Volume 3.

New York Inst. of Tech., Old Westbury Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research

Bureau No. BR-8-0157 Pub Date -[73] Contract - OEC-0-8-080157-3691(010)

Note - 212p.

EDRS Price - MF01 PC09 Plus Postage.

Descriptors—\*Algebra, \*Computer Assisted Instruction, Curriculum, Individualized Instruction. \*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, gramed Instructional Materials. \*Secon School Mathematics. \*Textbooks

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 3: solving problems with open sentences; axioms of equality; closure properties; commutative, associative, and distributive properties; and addition-subtraction and division-multiplication properties of equality. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015-854 - SE 015-870.) (DT)

0069 ED 075 203 Programmed Math Continuum, Level One. Algebra, Volume 2.

New York Inst. of Tech., Old Westbury Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No. BR-8-0157
Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—212p.

EDRS Price - MF01/PC09 Plus Postage.
Descriptors—\*Algebra. \*Computer Assisted Instruction. Curriculum, Individualized Instruction. \*\*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, \*\*Programed Instructional Materials, \*\*Secondary School Mathematics, \*\*Textbooks\*\*

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. The following topics are covered in Volume 2: punctuation marks; order of operations; evaluating algebraic expressions; identifying factors, coefficients, and exponents; solving open sentences; and translating verbal mathematical relationships into algebraic expressions. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.) (DT)

ED 075 202 Programmed Math Continuum. Level One. Algebra, Volume 1.

New York Inst. of Tech., Old Westbury.

Spons Agency—Office of Education (DHEW),
Washington, D.C. Bureau of Research.

Bureau No.—BR-8-0157

Pub Date—[73]
Contract—OEC-0-8-080157-3691(010)
Note—195p.

EDRS Price - MF01/PC09 Rhm 7 New York Inst. of Tech., Old Westbury

EDRS Price - MF01/PC08 Plus Postage.

Descriptors-\*Algebra. \*Computer Assisted Instruction, Curriculum, Individualized Instruction.
\*Instruction, Instructional Materials, Mathematics Education, Programed Instruction, \*Programed Instructional Materials. School Mathematics, \*Textbooks \*Secondary

This programed instruction study guide is one of a series that form a first-year algebra course. Structured in a multiple-choice question-answer format with scrambled pages, it is intended to be used in conjunction with a computer-managed instructional system. Volume 1 includes general instructions for working with this system, and then covers the following topics in algebra: number line, comparing numbers, sets and set membership, and subsets. Reading and homework assignments are taken from the text "Modern Algebra - Book I" by Dolciani. (Related documents are SE 015 854 - SE 015 870.)



0071 ED 075 201 Harrigan, J. Ward

Programmed Math Continuum, Level Onc. Algebra, Measurable Behavioral Objectives. New York Inst. of Tech., Old Westbury.

Spons Agency—Office of Education (DHE Washington, D.C. Bureau of Research.

Bureau No.—BR-8-0157

Pub Date—Dec 69

Contract—OEC-0-8-080157-3691(010)

Note-149p.

EDRS Price - MF01/PC06 Plus Postage.
Descriptors—\*Algebra. \*Behavioral Objectives.

\*Computer Assisted Instruction, Curriculum, Instruction. Mathematics Education, Objectives, Programed Instruction. Programed Instructional Materials, \*Secondary School Mathematics

There are two sections to this document: (1) a concept catalog which provides a simple descriptor (a single word or phrase) and number code for each student error identified in the answer matrices for the study guide, pretest, and posttest; and (2) a list of measurable behavioral objectives which give detailed and specific statements of the objectives to be taught for each of the volumes in this first-year algebra series of programed instruction study guides. (Related documents are SE 015 854 - SE 015 870.)

0072

ED 075 200

Harrigan. J. Ward

Programmed Math Continuum, Level One, Algebra. Handbook

New York Inst. of Tech., Old Westbury. Spons Agency—Office of Education (DHEW).
Washington, D.C. Pureau of Research.

Bureau No.-BR-8-0157 Pub Date—Dec 69 Contract—OEC-0-8-080157-3691(±10)

Note-81p.

EDRS Price - MF01/PC04 Plus Postage

Descriptors-Algebra, Computer Assisted Instruction, \*Curriculum. \*Curriculum Guides. In-Struction, Mathematics Education, Program Descriptions, \*Programed Instruction, Programed Instructional Materials, \*Secondary chool Mathematics

This handbook was prepared to accompany a series of programed study guides for first-year algebra. It presents the rationale and development of the program; gives an itemized summary of the strategies and logistics involved in installing and operat-ing the program as an individualized, self-paced, computer-managed course of instruction; and specifies the principles and procedures followed in creating the program. Three texts are cross-referenced to the material in this series: the core text, "Modern Algebra - Book I" by Dolciani, Berman, and Freilich: the enrichment text, "Algebra I" by Dodes and Greitzer; and the remedial text, "Comprehensive Ninth Year Mathematics" by Dressler. (Related documents are SE 015 855 - SE 015 870.) (DT)

0074

ED 069 505

Holland Bill

I earning Activity Package, Algebra-Trigonometry. Ninety Six High School, S. C.

Pub Date—72

Note-150p. EDRS Price - MF01/PC06 Plus Postage.

Descriptors-Algebra, Curriculum, Individualized Instruction, \*Instructional Materials, Mathematics Education, Objectives, \*Secondary School Mathematics, Teacher Developed Materials als, Teaching Guides, "Trigonometry, Units of Study

A series of ten teacher-prepared Learning Activity Packages (LAPs) in advanced algebra and trigonometry, the units cover logic; absolute value, inequalities, exponents, and complex numbers: functions; higher degree equations and the derivative; the trigonometric function; graphs and applications of the trigonometric functions; sequences and series: permutations, combinations, and probability; descriptive statistics; and special theorems and functions. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets. tape recordings, and filmstrips that go with the unit; a student self-evaluation problem set, suggestions for advanced study, and references. For other documents in this series, see SE 015 193, SE 015 194, SE 015 195, and SE 015 197. (DT)

Strachan. Florence Hirigoyen. Hector Algebra 1p. Mathematics: 5215.11. Dade County Public Schools. Miami, Fla.

Pub Date-71

Pub Date—77
Note—37p.: An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra. Pehavioral Objectives.
\*Curriculum. Instruction. Mathematies Education. \*Objectives. \*Secondary School Mathematics. \*Teaching Guides. Tests

Identifiers-Quinmester Program

This is the first of six guidebooks on minimum course content for first-year algebra; it introduces the language of sets, the fundamental operations and properties of the real number system, the use of variables, and the solution of simple linear equations and inequalities. Overall goals for the course are stated; then performance objectives, a unit outline, references to state-adopted texts, and teaching suggestions are concisely given for each topic. A sample pretes and posttest are included along with an annotated list of three references. See SE 014 874 and SE 0.4 875 for other booklets in the algebra sequence. (DT)

ED 067 294

ED 067 296

Edwards, Ra, nond J.
Modern Algebra, Mathematics: 5293.36. Dade County Public Schools, Miami, Fla Pub Date-71

Note-34p.: An Authorized Course of Instruction

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Behavioral Objectives, \*Curriculum.

Instruction. Mathematics Education. \*Gbjectives.

\*Secondary School Mathematics. \*Teaching Guides. Tests

Identifiers-Modern Aigebra, "Quinmester Pro-

This guidebook covers Boolean algebra, matrices, linear transformations of the plane, characteristic values, vectors, and algebraic structures. Overall course goals and performance objectives for each unit are specified, sequencing of units and various time schedules are suggested. A sample pretest and posttest are given, and an annotated list of 14 references is included. (DT)

ED 067 284 Rose. Patricia

Algebra Is, Mathematics: 5215.14. Dade County Public Schools, Miami, Fla.

Pub Date-

Note-20p., · Authorized Course of Instruction

for the Quantiester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—\*Algebra, Behavioral Objectives,

"Curriculum, Instruction, Mathematics Education, "Objectives, "Secondary School Mathematics," Teaching Guides, Tests

Identifiers-Quinmester Program

This is the fourth of six guidebooks on minimum course content for first-year algebra; it includes first degree equations involving absolute value, radicals. various approaches to solving quadratics, and prob-lem solving with quadratics. After course goals are stated, a listing of performance objectives, a course outline, textbook references, and teaching suggestions are given. Pretest and posttest items are included, plus an annotated list of three references. For other booklets in the series, see SE 014 897 and SE 014 874. (DT)

0078

ED 067 283

Hirigoyen. Hector Algebra 1Q, Mathematics: 5215.12.

Dade County Public Schools, Miami, Fla Pub Date-71

Pub Date—71
Note—23p.: An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—\*Algebra. Behavioral Objectives.
\*Curriculum. Instruction, Mathematics Education. \*Objectives. \*Secondary School Mathematics. \*Teaching Guides, Tests
Identifiers—\*Quinmester Program
This is the second of the six guidebooks on mini-

This is the second of the six guidebooks on minimum course content for first-year algebra; it includes the ordered field properties of the real number system, solution of linear equations and inequalities, verbal problems, exponents and operations with polynomials. Overall goals for the course are stated; performance objectives for each unit, a course outline, references to state-adopted texts. and teaching suggestions are given. A pretest and

posttest are included, plus a list of eight references For other booklets in the algebra sequence, see SE 014-897 and SE 014-875 (DT)

0079

ED 059 088

Moore, Mary N. Rose, Patricia Authorized Course of Instruction for the Quinmes

ter Program. Mathematics: Survey of Algebra 1. Dade County Public Schools, Mianni, Fla Fub Date

Note 25p
EDRS Price - MF01 PC01 Plus Postage.
Descriptors \*Algebra, Curriculum, \*Carriculum, Guides, \*Geometry, Instruction, Mathematics Education, Objectives, \*Secondary School Mathematics, Student Evaluation, Textbooks
Identifiers \*Quinnester Program
Continend are the minimum requirements for a

Outlined are the minimum requirements for a quinmester course intended to strengthen a stu-dent's experience in a first algebra course, prior to entry to high school geometry and the second algebra course. After a brief description of overall goals and strategies, further details are presented in eight sections. Each section gives performance objectives. course outline, suggested strategies, and textbook references. The material covered includes rational numbers, integer exponents, polynomials, radicals, quadratic equations and systems of linear equations Also included are an algebraic puzzle, suggested word problems, a list of vocabulary, a pretest, and a posttest - all with answers provided, (MM)

Historical Topics in Algebra.

National Council of Teachers of Mathematics, Inc. Washington, D.C.

Pub Date: 71

Note 81p.; Reprint from Thirty-first Yearbook of the NCTM, p233-332

Available from National Council of Teachers of Mathematics. (201 Sixteenth Street, N.W., Washington, D.C. 20036 (\$1.00)

EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.
Descriptors—\*Algebra, Enrichment, \*History, \*Instructional Materials, \*Mathematical Concepts, Mathematics, \*Secondary School Mathematics

This is a reprint of the historical capsules dealing with algebra from the 31st Yearbook of NCTM, Historical Topics for the Mathematics Classroom." Included are such themes as the Classroom." Included are such themes as the change from a geometric to an algebraic solution of problems, the development of algebraic symbolism. the algebraic contributions of different countries. the origin and development of topics in algebra, and the search for generality and abstract structures. (Author/JG)

0081 ED 052 960

A Self-Pacing Program in Algebra, Volume 2.
Baltimore County Public Schools, Towson, Md;
Maryland State Dept. of Education, Baltimore
Pub Date—70
Note—372p.

EDRS Price - MF03/PC15 Plus Postage.
Descriptors—\*Algebra, Curriculum Development.
\*Curriculum Guides, \*Individualized Instruction.
Individualized Programs. \*Mathematics Curriculum Mathematics Education Mathematics Materials. \*Secondary School Mathematics. Materials. Teaching Guides

This self-pacing program is the result of a cooperative curriculum development project between The Maryland Department of Education and The Baltimore County Schools. Included is a teachers guide for the use of the materials. The philosophy of this approach is that of individualization of instruction wherein the student moves at a pace commensurate with his ability and background. He studies a topic. either individually or with a small group, then he takes a test measuring mastery of that material. The test is marked "complete" or "incomplete." If he completes" the topic unit, he proceeds to the next; if not, he does some remedial work until he "com-pletes" the topic unit. It is suggested that written progress reports be kept for each student continuourly and that grades for the course be based on number of units completed. The content of this course includes systems of linear open sentences. polynomials and factoring, rational numbers and experssions, relations and functions, real numbers, complex numbers, logarithms, progressions and the binomial expansion, probability, quadratic systems. and matrices. Also included is an extensive itemized list of behavioral objectives for each topic, student assignments for each topic and tests and keys for each topic unit. (Author/CT)



A Self-Pacing Program in Algebra, Volume 1.
Baltimore County Public Schools, Towson, Md.;
Maryland State Dept. of Education, Baltimore Pub Date-70

Note -322p.

EDRS Price - MF02/PC13 Plus Postage.

Descriptors—\*Algebra, Curriculum Development.
\*Curriculum Guides. \*Individualized Instruction. Individualized Programs. 'Mathematics Curniculum, Mathematics Education, Mathematics Materials, \*Secondary School Mathematics. Teaching Guides

This self pacing program is the result of a cooperative curriculum development project between The Maryland Department of Education and The Baltimore County Schools. Included is a teachers guide for the use of the materials. The philosophy of this approach is that of individualization of instruction wherein the student moves at a pace commensurate with his ability and background. He studies a topic. ither individually or with a small group, then he takes a test measuring mastery of the material. The test is marked "complete" or "incomplete." If he "completes" the topic unit, he proceeds to the next; if not, he does some remedial work until he "completes" the topic unit. It is suggested that written progress reports be kept for each student continuously and that grades for the course be based on number of units completed. The content of this course includes sets, number properties, open sentences, operations with variable expressions, functions, and graphing. Also included is an extensive itemized list of behavioral objectives for each topic. student assignment sheets for each topic, tests and keys for each topic unit. (Author/CT)

ED 046 778 Unified Modern Mathematics, Course 3, Part 2. Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.

Spons Agency-Columbia Univ., New York, N.Y. Teachers College.: Office of Education (DHEW). Washington. D.C. Bureau of Research Bureau No.—BP-7-0711

Pub Date—70 Contract— OEC-1-7-070711-4420 Note—271p. EDRS Price - MF01/PC11 Plus Postage.

EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Algebra. "Curriculum Development.
Geometry, "Instructional Materials. Mathematics, "Modern Mathematics, Probability. "Secondary School Mathematics." "Textbooks." Trigonometry

The second part of Course III includes a study of probability, polynomial, rational and circular func-tions, and informal space geometry. The chap er on probability presents such topics as probability presents ure, outcome sets and events, and overview of tapics studied in Courses I and II. Chapters on functions include polynomial algebra concepts and basic trigonometry. The space geometry chapter generalizes the notions of incidence, parallelism, perp ndicularity, and coordinate systems to three dimensions. (FL)

0084 ED 046 777

Unified Modern Mathematics, Course 3, Part 1. Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.

provement Study. New York, N.Y.

Spons Agency—Columbia Univ., New York, N.Y.
Teachers College.; Office of Education (DHEW),
Washington, D.C. Bureau of Research.

Bureau No.—BR-7-0711

Pub Date—70
Contract—OEC-1-7-070711-4420

Note—2336

Note-233p.

EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Algebra, \*Curriculum Development.

\*Instructional Materials, Mathematics, \*Modern Mathematics. Probability. \*Secondary School Mathematics. \*Textbooks The first part of Course III focuses on matrix alge-

bra, graphs and functions, and combinatorics. Topics studied include: matrices and transformations, the solution of systems of linear equations, matrix multiplication, matrix inversion and a field of 2 x 2 matrices. The section on graphs and functions considers regions of the plane and translations, functions and solution of equations, operations on functions, and bounded functions and asymptotes. The chapter on combinatorics discusses such topics as a counting principle and permutations, the binomial theorem, and mathematical induction (FL)

Unified Modern Mathematics. Course 3. Teachers Commentary.

EDRS Price - MF03 Plus Postage, PC Not Avellable from EDRS.

Descriptors—Course Descriptions. \*Curriculum Guides. \*Instruction. \*Instructional Materials. Mathematics. \*Secondary School Mathematics. \*Teaching Guides

This commentary is to be used with "Unified Modera Mathematics, Course III." Statements of specific purposes and goals of each section of every chapter of Course III are included in the "Commontary." Also included are suggestions for teaching concepts presented in each section; time estimates for each section; suggested instructional aids for presenting various concepts; references for further study; and chapter examinations which constitute a comprehensive test for each chapter. [Not available in hardcopy due to marginal legibility of original document.] (FL)

0086 ED 041 746

Beavers, Mildred And Others Second Course in Algebra and Trigonometry With Computer Programming, Revised Edition.

Boulder Valley School District. Colo.: Cherry Creek.

School District 5. Englewood. Colo.: Jefferson County School District. Colo.

Spons Agency-National Science Foundation. Washington, D.C. Pub Date-69

Note-548p.

Descriptors—\*Algebra, \*Computer Oriented Programs, Curriculum, Instruction, \*Instructional Materials, \*Mathematics Education, Secondary School Mathematics, \*Trigonometry

This text is an integrated presentation of a second year course in algebra and trigonometry and digital computer modeling techniques using the programming language BASIC. Computer concepts are used directly with the mathematics throughout the text. No attempt is made to develop especially proficient programmers, but rather to present computer concepts that will make the mathematics easier to un-derstand. Of special interest are computer programming problems involving abstract algebra, field properties, functions, polynomials, and systems of equations. (FL)

0087 ED 022 963 Rahmlow, Harold F.

Occupational Mathematics: Equivalent Forms of ABC. Report No. 16-N. Booklet II. Final Re-

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman, Dept. of Education.

Spons Agency—Office of Education (DHEW).
Washington, D.C.
Bureau No.—BR-7-0031

Pub Date-Jun 68

Grant—OEG-4-7-070031-1626 Note—132p.

EDRS Price - MF01/PC06 Plus Postage.
Descriptors—\*Algebra. \*Arithmetic. \*Fundamen-

tal Concepts. \*Programed Instructional Materials. \*Textbooks. \*Vocational Education

This programed mathematics textbook (Volume II) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusers. The development of a sequential content struc-jure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) recognize a correct ei-uation of the type a = bc, where a, b, c are either letters or positive integers less than 100. (2) recognice equivalent statements of the general equation a=.bc. when these statements are obtained by replarement, multiplication, or division, (3) select the con ect method (replacement, multiplication, or division) for deriving an equivalent statement from an equation of the form a=bc. (4) demonstrate

competency in the previous objectives by correctly answering four out of the multiple choice text items covering each objective. The material is to be used individual students under teacher supervision Twenty-six other programed texts and an introduc-tory volume are available as VT 006-882-VT 006-909 (EM)

0038 FD 022 945

Rahmlow, Harold F. And Others Occupational Mathematics: Solutions of ABC. Report No. 16-O. Final Report.

Washington State Coordinating Council for Occu-pational Education, Olympia, Washington State Univ., Pullman, Dept. of Education

Chiv., Puliman, Dept of Education Spons Agency Office of Education (DHEW), Washington, D.C. Burcau No. BR-7-(003) Pub Date Jun 68 Grant OEG-4-7-(0003)-1626 Note 103p. FIRS Price - MEul P.Cos Dim. Programs

EDRS Price - MFu1 PC05 Plus Postage.
Descriptors - \*Algebra, \*Arithmetic. \*Fundamental Concepts. \*Programed Instructional Materials, \*Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to solve equations of the form a = be for any one letter, given positive integral values for the other two. The material is to be used by individual students under teacher supervision. Twenty-six otner programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975 (EM).

0089 ED 022 944

Rahmlow, Harold F. 4nd Others Occupational Mathematics: Equivalent Forms of ABC, Report No. 16-N. Final Report. Washington State Coordinating Council for Occu-

pational Education, Olympia, Washington State Univ. Pullman, Dept. of Education

Chiv. Pullman. Dept. of Education Spons. Agency. Office of Education (DHFW), Washington, D.C. Bureau No.: BR-7-0031 Pub Date: Jun 68 Grant: OEG-4-7-070031-1626 Note: 119p.

Descriptors \*Algebra, \*Arrametre, \*Fundamental Concepts, \*Programed Astructional Materials, \*Textbooks, \*Vocational Education

This programed mathematics textbook (Volume I) is for student use in vocational education courses It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to (1) recognize a correct equation of the type a=bc, where a, b, c are either letters or position integers less than 100. (2) recognize equivalent statements of the general equation a=bc, when these statement are obtained by replacement, multiplication, or division, (3) select the correct method (replacement, multiplication, or division) for derivitig an equivalent statement from an equation of the form a=bc, (4) demonstrate competency in the previous objectives by correctly answering four out of five multiple choice test items covering each objertive. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 018 390 GLENN, EUEL

AXIOMS. EQUATIONS. AND PROBLEM SOLVING, LEARNING ACTIVITY PACK-AGE NO. 3, ALGEBRA I.

Hughson Union High School, Calif Report No. "DPSC-67-4401 Pub Date JUL67 Note 41P. EDRS Price - MF01/PC02 Plus Postage.

Descriptors Algebra, Grade 9, \*Individual Instruction, \*Instruction, \*Instructional Materials, \*Learning, \*Mathematics, \*Problem Solving, \*Secondary School Mathematics



THIS LEARNING ACTIVITY PACKAGE (LAP) IS DESIGNED TO GUIDE STUDENTS IN LEARNING HOW TO USE AXIOMS. IN WRITING PROBLEMS INTO EQUATION FORM. AND IN SOLVING EQUATIONS. IN ORDER TO ATTAIN THESE GOALS. THE STUDENT AT SOME POINT IN HIS PROGRAM MUST BE ABLE TO (1) WRITE A DEFINITION OF "AXIOM". (2) USE THE AXIOMS OF A FIELD IN SOLVING EQUATIONS. (3) TRANSFORM A WRITTEN PROBLEM INTO AN ALGEBRAIC "SENTENCE" AND USE THE FIELD PROPERTIES TO SOLVE THE RESULTING EQUATION. AND (4) SOLVE EQUATIONS WITH A VARIABLE IN BOTH MEMBERS. PERIODIC CHECKPOINTS ARE BUILT INTO THE "YSTEM TO "ENABLE THE ACCELERATED STUDENT TO BY-PASS FAMILIAR ASSIGNMENTS AND TO ENABLE THE SLOWER STUDENT TO CORRECT DEFICIENCIES. (RP)

0091 ED 018 362
AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR, UNITS 1, 2, 3, AND 4.

New York State Education Dept., Albany.

New York State Education Dept.. Albany.
Pub Date—64
Note—123P.
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—\*Algebra. \*Curriculum. \*Curriculum.
Guides. Grade 9. \*Mathematics. \*Secondary School Mathematics. \*Set Theory. \*Teaching Guides. \*Teaching Methods
Identifiers—NEW YORK
1-HIS CURRICULUM GUIDE IS THE FIRST OF SEVERAL EXPERIMENTAL EDITIONS CONTAINING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE 9. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASS-ROOM USE ARE PROVIDED IN THE CONTENT AREAS OF (1) SETS. (2) ALGEBRAIC EXPRESSIONS, (3) THE SET OF INTEGERS, AND (4) OPEN SENTENCES. (RP)

ED 016 624 WARREN. LEONARD M.

INSTRUCTIONAL GUIDE FOR ALGEBRA 1, GRADES 9 TO 12.
Los Angeles City Schools, Calif.
Report No.—X-65

Pub Date-66

Note—53P.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—\*Algebra. Course Content. \*Curriculum Guides. Instructional Mathematics. \*Secondary School Mathematics. \*Teaching Guides. Teaching Methods Identifiers—CALIFORNIA, California (Los Angeles).

Identifiers—CALIFORNIA, California (Los Angeles)

THIS INSTRUCTIONAL GUIDE WAS WRITTEN TO PROVIDE ASSISTANCE TO TEACHERS IN DEVELOPING THE BASIC CONCEPTS AND SKILLS OF ELEMENTARY ALGEBRA. THE CONTENT FOR EACH UNIT INCLUDES GOALS, A SEQUENTIAL DEVELOPMENT OF THE UNIT, AND SPECIFIC TEACHING SUGGESTIONS. THE TABLE OF CONTENTS FOR THE COURSE IS A DUPLICATION OF THE TABLE IN DOLCIANI, BERMAN, AND FREILICH'S "MODERN ALGEBRA, STRUCTURE AND METHOD." BOOK 1. AN ALTERNATE SEQUENCE USING THE TEXT, KEEDY, JAMESON, AND JOHNSON'S "EXPLORING MODERN MATHEMATICS." POOK 3 ELEMENTARY ALGEBRA. 19-PROVIDED AND RECOMMENDED FOR USE WITH HIGH-ABILITY GROUPS TO CULMINATE THE ON-GOING SEQUENCE PRESENTED IN BOOKS 1 AND 2. (RP)

0093
AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR UNITS 10 AND II, OPEN SENTENCES IN TWO VARIABLES AND RELATIONS AND FUNCTIONS TIONS.

New York State Education Dept., Albany Pub Date—65 Note-83P.

Descriptors—Algebra, \*Curriculum, \*Curriculum Guides, Grade 9, \*Mathematics, \*Secondary School Mathematics, Teaching Guides, Trigonometry

Identifiers NEW YORK
THIS TEACHING GUIDE IS THE FOURTH
OF FIVE EXPERIMENTAL EDITIONS CON-OF FIVE EXPERIMENTAL EDITIONS CONTAINING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE. 9 BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASS. ROOM PRESENTATIONS ARE PROVIDED IN THE CONTENT AREAS OF (1) OPEN SENTENCES IN TWO VARIABLES (UNIT 10) AND (2) RELATIONS AND FUNCTIONS (UNIT 11). UNIT 10 INCLUDES SECTIONS ON ALGEBRAIC SOLUTIONS, SOLUTION BY GRAPHING, AND SOLUTION OF INEQUALITIES UNIT 11 INCLUDES SECTIONS ON RELATIONS, FUNCTIONS (ALGEBRAIC AND TRIGONOMETRIC), RANGE AND DOMAIN, GRAPHING RELATIONS AND FUNCTIONS, AND SLOPE AND INTERCEPT (RP)

WU94 ED 016 617
AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR. UNITS
8 AND 9. POLYNOMIAL EXPRESSIONS
AND POLYNOMIAL EQUATIONS.
New York State Education

New York State Education Dept., Albany. Pub Date-65

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Algebra. \*Curriculum Curriculum Guides. Grade 9. \*Mathematics, \*Secondary School Mathematics. \*Teaching Guides

Guides, Grade 9, "Mathematics, "Secondary School Mathematics, "Teaching Guides Identifiers--NEW YORK THIS TEACHING GUIDE IS THE THIRD OF FIVE EXPERIMENTAL EDITIONS CONCERNING MATERIALS AND METHODS FOR TEACHING A REVISED MATHEMATICS PROGRAM IN GRADE 8. BACKGROUND MATERIAL FOR TEACHERS AS WELL AS QUESTIONS AND ACTIVITIES FOR CLASS-ROOM PRESENTATIONS ARE PROVIDED IN THE CONTENT AREAS OF POLYNOMIAL EXPRESSIONS (UNIT 8) AND POLYNOMIAL EQUATIONS (UNIT 9). UNIT 8 CONTAINS SECTIONS ON ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION OF POLYNOMIAL EXPRESSIONS, AND FACTORING POLYNOMIAL EXPRESSIONS. UNIT 91"CLUDES SECTIONS ON SOLUTION BY FACTORING, SOLUTION BY COMPLETING THE SQUARE, SOLUTION BY COMPLETING THE SQUARE, SOLUTION BY QUADLATIC FORMULA, GRAPHING QUADRATIC EQUATIONS, AND SIMPLE PROOFS. (RP)

NINTH YEAR MATHEMATICS. COURSE I. ALGEBRA.

New York State Education Dept., Albany, Pub Date-65

EDRS Price - MF01/PC01 Plus Postage.
Descriptors—"Algebra, Arithmetic, "Curriculum Guides, Geometry, Grade 9, "Mathematics, "Secondary School Mathematics. \*Teaching Guides.

ondary School Mathematics. \*Teaching Guides. Trigonometry
Identifiers—NEW YORK
THIS GUIDE OUTLINES THE MINIMUM MATERIAL FOR WHICH STUDENTS OF NINTH YEAR MATHEMATICS - COURSE 1-ALGEBRA WERE HELD RESPONSIBLE ON THE REGENTS EXAMINATIONS BEGINNING IN JUNE, 1966. THE REPORT ALSO PRESENTS THE SCOPE AND CONTENT OF THE ALGEBRA COURSE AND POSSIBLE SUGGESTIONS FOR TEACHING THE MATERIAL TO STUDENTS. (RP)

ED 173 100

Allen, Frank B. And Others

Mathematics for High School, First Course in Algebra, Part 2. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency National Science Foundation.
Washington, D.C.
Pub Date- 59

Note—239p.; For related documents, see ED 135 617-618; Contains occasional light and broken

Pub Type.— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors.—\*Algebra, Curriculum, "Instruction, Mathematics Education, "Number Concepts, Secondary Education, "Secondary School Mathematics \*Tauthoris\* ematics, \*Textbooks Identifiers—\*Polynomials, \*School Mathematics

Study Group

This is part two of a three-part SMSG algebra text for high school students. The principle objective of the text is to help the student develop an understanding and appreciation of some of the algebraic structure exhibited by the real number system, and the use of this structure as a basis for the techniques of algebra. Chapter topics include addition and mulof ageoral chapter togets include addition and multiplication of real numbers, subtraction and division of real numbers, factors, exponents, radicals, and polynomia's and rational expressions. Moderate tevisions are contained in a later edition. (MP)



#### APPLICATIONS

0100 ED 183 413 Wahl Mark

Two Wheel Math: An Application Module. Regional Center for Pre-Coll. Mathematics. Denver, Colo.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date—74
Grant—NSF-GW-7720
Note—56p.; For related documents, see SE 030 304-321

Pub Type— Guides - Classroom - Learner (051) — Guides - Classroom - Teacher (052)

EDRS Price • MF01/PC03 Plus Postage.

Descriptors— Activities, Bicycling, Energy, Geometric Concepts, Learning Laboratories, Mathematical Applications. Mathematics Curriculum.

\*Mathematics Instruction, Motivation, Physics, Ratios (Mathematics), Secondary Education.
\*Secondary School Mathematics, Worksheets
This unit is designed to be used primarily by stu-

dents who have some interest in bicycles. It is intended to draw them into mathematical thinking in an interesting way. This unit is laboratory oriented. It will be necessary that the student have access to a bicycle in the classroom for several of the exera bicycle in the classroom for several of the exer-elses (unless they are done primarily at home). Some of the activities should be done out on the street while riding, and they are referred to as home-play assignments. Others are strictly pencil-and-paper exercises. Most, however, require data gathering from the bicycle. Included is a statement of many of the more obvious behav oral objectives of this module. It cannot be over-emphasized. however, that the primary objective of this unit is that the student increase his/her enthusiasm for mathematics and his/her understanding of how mathematics can give an enriching insight into ordinary things around us. (Author/MK)

0101 ED 183 404

Karlin, Marun And Others Sales Tax. Project Module for Use in a Mathemat-

ics Laboratory Setting.
Regional Center for Pre-Coll. Mathematics. Denver. Colo.

Spons Agency—No Washington, D.C. Pub Date—73 -National Science Foundation,

Grant—NSF-GW-7720 Note—41p.; For related documents, see SE 030 304-322: Contains occasional light and broken

type
Pub Type— Guides - Classroom - Learner (051) —

Guides - Classroom - Teacher (052) = Course - Classroom - Teacher (052) EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Activities, Computation, Graphs.

\*Learning Laboratories, Mathematical Applications, Mathematical Formulas, Mathematics Curriculum, "Mathematics Instruction, Secondary Education, "Secondary School Mathematics, Tables (Dais), "Taxes, Worksheets

This project involves devising and evaluating a sales tax schedule to meet the specific revenue needs of a h rothetical state in the United States. Conducting this unit involves many mathematical skills in a learning environment familiar to the student. The essential parts of the project consist of student preparation of a tax schedule and class par-ticipation in evaluating the proposals of others. Mathematical operations involve arithmetic computations (including computation of percent), construction of tables, formulae, rounding, graphing, and employment of random numbers. (Author/MK)

0102 ED 176 987

Cross, Judson B. And Others Applied Mathematics: An Introductory Course,
Boston Univ., Mass. Physical Science Group,
Spons Agency—National Science Foundation,
Washington, D.C.

Washington, D.C.
Pub Date—75
Grant—NSF-GZ-2892
Note—360p.; Contains occasional light type
Pub Type— Guides - Classroom - Learner (051) —
Guides - Classroom - Teacher (052)
EDRS Price - MF0\*/PC15 Plus Postage,
Descriptors—College Curriculum, \*College Mathematics. \*Computation, Higher Education, Lincar Programing, \*Mathematical Applications.
\*Mathematical Concepts, Mathematical Enrichment, Mathematical Vocabulary, \*Mathematics.
\*Mathematics Instruction, Science Education, Set Theory, Trigonometry Set Theory. Trigonometry

Identifiers -- \*Functions (Mathematics)

The intent of this text is to provide students in a variety of science and technology disciplines with a basic understanding of mathematics commonly used in introductory texts in such disciplines. The first five chapters develop skills needed for efficient numerical calculation. The last five chapters examine the basic properties of elementary functions Special emphasis is placed on finding analytical expressions from graphical representation of data. (Author RE)

0103 ED 173 140 Junior High School Mathematics Units, Volume III. Applications. Commentary for Teachers. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C. Pub Date-59

Note—70p.; For related documents, see SE 027 971-972; Contains occasional light and broken

type
Pub Type — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors — Curriculum. "Curriculum Guides.
\*Instruction, Junior High Schools, \*Mathematics Applic Lions, Mathematics Education. \*Probability, Sex Indary Education. \*Secondary School Mathematics, \*Statistics Identifiers — \*School Mathematics Study Group

Identifiers - School Mathematics Study Group This is volume three of a three-volume set for teachers sing SMSG junior high school text materials. Each unit contains a commentary on the text, answer to all the exercises, a copy of the questionnaire back for evaluating the material, and a summary of comments by the teachers using the text. Unit topics include: (1) what is mathematics. (2) the scien c seesaw; (3) statistics; and (4) chance. (MP,

0104 ED 173 109 Junior High School Mathematics Units, Volume III, Applications.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency--National Science Foundation.
Washington, D.C.
Pub Date--59
Note--60p.; For related documents, see SE 027

914-915; Contains occasional light and broken type Pub Type

type
Pub Type Guides · Classroom · Learner (051)
EDRS Price · MF01/PC03 Plus Postage.
Descriptors—Curriculum. \*Instruction, \*Mathematical Applications. Mathematics Education.
\*Probability. Secondary Education, \*Secondary
School Mathematics. \*Statistics, \*Textbooks
Identifiers. \*School Mathematics Study Group.

Identifiers--- School Mathematics Study Group This is volume three of a thre:-volume SMSG junior high school mathematics text. This volume includes the units concerned with applications of mathematics. Unit topics include: (1) what is mathematics and why you need to know it; (2) mathematics at work in science: (3) Uncle Sam as a statistician; and (4) chance. (MP)

ED 167 389

Avenoso, Frank J. And Others Mathematics Lessons That Live. The MATYC Journal/ERIC Monograph Series.

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education. Columbus, Ohio.: Nassau Community Coll.. Garden City. N.Y. Dept. of Mathematics and Computer Processing. Pub Date—78

Note—63p.

Available from—The MATYC Journal. Dept. of Mathematics and Computer Processing. Nassau Community College, Stewart Avenue, Garden City. New York 11530 (53.75)

Pub Type— Guides · Classroom · Teacher (052)

EDRS Price · MF01/PC03 Plus Postage.

Descriptors—Consumer Education. Geometry. Higher Education. Instruction. \*Mathematical Applications, \*Mathematical Enrichment.

\*Mathematics Education Proba-

Applications, \*Mathematical Enrichment. \*Mathematics Education. Probability. Secondary Education. Set Theory, Statistics. \*Student Projects Identifiers-Information Analysis Products

Several highly motivating lessons particularly pertinent to the study of mathematics in high schools and the first years of college are presented. These lessons fall into four categories: (1) problems that present a challenge and which are interesting for

their own sake: (2) problems based on real situations

that can be understood by the student, (3) purvles and mathematical games, and (4) project-oriented mathematics. Includia are notions from graph theory, geometry, number theory, logic, probability, statistics, consumer mathematics, and set theory (MP)

0106 ED 164 816

Heppa. Victor

Math for Masons. (Revised).

Bergen County Vocational-Technical High School, Hackensack, N.J., Rutgers, The State Univ., New Brunswick, N.J. Curriculum Lah

Spons Agency New Jersey State Dept of Educa-tion, Trenton, Div. of Vocational Education.

Pub Date 78 Note 167p

Available from New Jersey Vocational-Technical Curriculum Laboratory, Building 4103, Kilmer Campus, Rutgers University, New Brunswick, New Jersey 08903 (\$5.25, plus postage) Pub Type Guides General (050)

Pub Type Guides - General (050)
EDRS Price - MF01, PC07 Plus Postage.
Descriptors Arithmetic, \*Bricklayers, \*Computation, Decimal Fractions, Fractions, \*Individualized Instruction, Learning Modules, \*Massorry, \*Mathematics Instruction, Mathematics V. crials, Measurement, Performance Tests, \*Problem Sets, Secondary Education, Trade and Industrial Education

This student manual is concerned with the practical application of mathematics as used by masons The manual's design allows students to work at their own pace. Included in each of the five units are individual lesson sheets with written instructions and explanations. Each information sheet states that topic's objectives, information about the topic, examples of procedures, and problems for the student to solve. Unit 1, decimal fractions, contains prob-lems in addition, subtraction, multiplication, division, decimals on the electronic calculator, percents to decimals, fraction equivalents, and multiplication and divison by percents. Unit 2 contains problems on rounding off numbers. Unit 3, fractions, contains problems in addition, adding fractions on the calculator, dimensions-addition, adding dimensions on the calculator, converting fractional part of a foot to inches, subtraction of fractional dimensions, subtraction of dimensions on the calculator, and multiplication and division of fractions. Unit 4, square measure, contains problems concerning areas and perimeters of squares, rectangles, triangles, and circles; areas of walls and ceilings; and areas of solid geometric figures. Unit 5, cubic measure, contains problems in computing volumes of cubes, rectangular prisms, and walls; quantities of materials (brick, mortar, stone); footings, volumes of cylinders and triangular prisms; and the cubic yards of concrete floors, walks, and patios. Unit tests are provided at the end of the manual (answers are not provided)

0107 ED 162 874

Bell. Max S., Ed.

Studies in Mathematics, Volume XVI. Some Uses of Mathematics: A Source Book for Teachers and Students of School Mathematics.

Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency- National Science Foundation.

Washington, D.C.

Pub Date 67 Note 252p.; For related documents, see SE 025 371-375 and ED 143 544-557; Contains numerous copyrighted articles

Available from: ERIC Clearinghouse for Science, Mathematics & Environmental Ed., The Ohio State Univ., 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 (on loan)

Pub Type Books (010)

Document Not Available from EDRS.

Descriptors Curriculum. Instruction. \*Instructional Materials. \*Mathematical Applications. \*Mathematical Models, Mathematics Education, \*Resource Materials, Secondary Education, \*Secondary School Mathematics

Identifiers \*School Mathematics Study Group This is a collection of articles dealing with mathematical applications for use by high school teachers and students. The articles are intended to illustrate several themes: (1) how mathematics is applied via construction of mathematical models; (2) the various types of activities in applied mathematics: (3) the role of pure mathematics in applied mathematics; and (4) a number of specific examples illustrations. ing the nature of applications of mathematics in a variety of fields. Chapter topics include: (1) mathematics and social policy; (2) mathematics in the natural sciences: (3) computers; (4) elections; (5) geometry; (6) orbiting; (7) crytography; (8) nuclear energy; (9) space age; (10) capital budgeting; (11) decision models; (12) social sciences; (13) psychology; (14) chemistry; (15) neural networks, (16) queueing; (17) the birthday problem; and (18) bridge. (MP)

0108 ED 161 756

Case Studies in Applied Mathematics.

Mathematical Association of America, Washington. D.C.

Spons Agency-National Science Foundation. Washington, D.C. Pub Date—76

Note-438p.; Pages 326-343 removed due to copyright restrictions: Not available in hard copy due

to marginal legibility of original document Available from—The Mathematical Association of America, 1529 Eighteenth St., N.W., Washing-ton, D.C. 20036 (no price quoted)

Pub Type--- Books (010)

EDRS Price - MF01 Plus Postage, PC Not Availahle from EDRS.

Descriptors-Behavior Patterns, \*College Mathematics. Communicable Diseases. Computers. Ecology. Heat. Higher Education. \*Instruction. \*Mathematical Applications, \*Mathematical Models. Political Power. Population Trends. Power Technology. Statistics, \*Teaching Guides Identifiers-\*Committee on the Undergraduate Program in Math

This collection of nine case studies in applied mathematics was written primarily for the use of the instructor by a Conference sponsored by the Committee on the Undergraduate Program in Mathematics (CUPM). Each chapter . intains exercises of varying degrees of difficulty and several include student projects. The materials were used on a trial basis and the results of these experiences are reported. The first chapter discusses the process of applied mathematics. The case studies are 1. house suring power in weighted voting systems; model for municipal street-sweeping operations,

a mathematical model of renewable resources; (-, some examples of mathematical models for the dynamics of several-species ecosystems; (5) population mathematics; (6) MacDonald's work on Helminth Infections; (7) modeling linear systems by frequency response methods; (8) network analysis of steam generator flow; and (9) heat transfer in frozen soil. (MP)

0109 Bell. Max S ED 143 557

Studies in Mathematics, Volume XX. Mathematical Uses and Models in our Everyday World. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-72

Note-161p.; For related documents, see SE 023 028-040; Contains numerous light type

Pub Type— Books (010)

EDRS Price - MF01/PC07 Plus Postage. Descriptors-Arithmetic, Elementary Education, Elementary School Mathematics, \*Instructional Materials, \*Mathematical Applications, \*Math-

ematical Models, Secondary Education, \*Second-

ary School Mathematics, \*Textbooks Identifiers—\*School Mathematics Study Group This book is intended as a demonstration that a variety of interesting problems suitable for use in the school mathematics experience of everyperson can be fabricated from available sources. It is intended to be illustrative rather than exhaustive. The problems in the book are intended to be accessible to children by the middle school years. The expository sections may be difficult for middle school students. The underlying idea throughout the book is that of mathematical models. Chapters included in the book are: (1) Uses of Numbers for Description and Identification: (2) Uses of Pairs or Triples of Numbers; (3) The Role of Measures in Application; (4) Formulas as Mathematical Models; and (5) Examples of Problem Collection Themes. A selected bibliography concludes the book. (RH)

0110 ED 143 551

Schiffer, Max M

Studies in Mathematics, Volume X. Applied Mathematics in the High School.

Stanford Univ., Calif. School Mathematics Study

Spons Agency National Science Foundation, Washington, D.C.

Pub Date -63

Note-157p., For related documents, see SE 023 028-041; Contains numerous light type Pub Type- Books (010)

EDRS Price - MF01/PC07 Plus Postage.
Descriptors—\*Algebra. Geometry. Instructional Materials. \*Mathematical Applications, Mathematics, Optics, \*Physical Sciences, \*Secondary School Mathematics, \*Teaching Guides

Identifiers--- \*School Mathematics Study Group

This publication contains a sequence of lectures given to high school mathematics teachers by the author. Applications of mathematics emphasized are elementary algebra, geometry, and matrix algebra. Included are: (1) an introduction concerning teaching applications of mathematics. (2) Chapter 1 Mechanics for the High School Student: (3) Chapter 2: Growth Functions; (4) Chapter 3: The Role of Mathematics in Optics: (5) Chapter 4: Application of Matrix Algebra. Included in each chapter are background materials, examples, some teaching suggestions, and some exercises. (RH)

Cosler, Norma, Ed.

ED 123 065

Applied Math Problem: in Agriculture, Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem, Oregon State Dept. of Education, Salem, Career and Vocational Education Section.

Pub Date-74

Note-97p.; For related documents, see SE 020 628-648

Available from-Continuing Education Publications. P.O. Box 1491, Portland, Oregon 97207 Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors-\*Agriculture, Algebra, Geometry, Individualized Instruction, \*Instructional Materials, Mathematical Applications, Mathematics Educa-tion, Number Concepts, \*Problem Sets, Second-ary Education, \*Secondary School Mathematics, Trigonometry, \*Vocational Education

Identifiers-Oregon Vo Tech Math Project

This booklet, developed by the Oregon Vo-Tech Math Project, contains a series of mathematical problems related to vocations in agriculture. The mathematical topics on which problems are based include whole numbers; fractions; decimals; percent; use of formulas; charts and graphs; ratio and proportion; solution of equations; perimeter, area. and volume; right angle trigonometry; and logarithms. Solutions are provided for all problems.

0112 ED 122 030 Mathematics. Unit 6: A Core Curriculum of Related Instruction for Apprentices.

New York State Education Dept., Albany, Bureau of Occupational and Career Curriculum Develop-

Pub Date-76

Note-38p.: For related documents, see CE 006 872-876

Pub Type- Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Curriculum Guides. Educational Objectives, \*Mathematics Education. Mathemat-

ics Instruction. Postsecondary Education. Resource Materials. \*Teaching Guides. \*Unit Plan The mathematics unit is presented to assist apprentices to acquire a general knowledge of mathematic skills. The unit consists of hine modules: (1) basic addition, subtraction, multiplication, and division: (2) conventional linear measure; (3) using the metric system. (4) steps to take in solving problems. (5) how to calculate areas and volumes, (6) basic principles of algebra. (7) finance-how to compute wages, payroll deductions, interest rates, and business expenses. (8) statistics and graphs, and (9) how to use the slide rule. Each module contains information on the following areas: objectives, references (textbooks), content, instructional suggestions, and background information. (EC)

0113 ED 120 55 v

Bogdany, M. Ivin

Mathematics for the Baker.

Rutgers. The State Univ. New Brunswick, NJ Curriculum Lab

Spons Agency New Jersey State Dept. of Entropy. Trenton Div. of Vocational Edization Report No. VT-102-626

Pub Date: Jun 76 New Jersey State Dept. of E-till a

Note 1965

Available from New Jersey Vocational Technologic Curriculum Laboratory, Rutgers-The State Lindyerstry, Building 41(5) Kilmer Campus New York (1998) (2018) Brunswick, New Jersey 08903 (Catalog Number BA-339, \$3.50)
Pub Type Books (010)
EDRS Price - MF01 PC08 Plus Postage.

Descriptors Career Development, "Curricular Guides, "Food Service Occupations, "Instructional Materials, Job Skills, Learning Activities, "Mathematical Applications, Mathematics, Mathematics Instruction, Mathematics Materials Money Management, Secondary E facation, \*Secondary School Mathematics, Study Guides, Vocational Education Identifiers \*Bakers

The curriculum guide offers a course of training in the fundamentals of mathematics as applied to baking. Problems specifically related to the baking trade are included to maintain a practical orientation. The course is designed to help the student develop proficiency in the basic computation of whole numbers. fractions, decimals, percentage, ratio and proportion, converting formulas, and conting formulas Material is also included to increase mathematical skills in weights and measures, pricing and selling, purchasing of raw materials, handling cash, and wages and hours (Author NJ)

FD 112 088

Picot. Donald

Applied Mathematics-Machine Shop: A Teachers Guide.
Rutgers. The State Unix New Britishick, N.J.

Curriculum Lab

Spons Agency - New Jersey State De, of Edition. Trenton. Div of Vocational Education Note - 97p.

Pub Type— Guides - Ger cral (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors - Assignments, \*Curriculum Guides. \*Individualized Instruction, Instructional Materials. Lesson Plans. \*Machinists. Mathematical Applications. \*Mathematics. Mathematics Mathematics Instruction, Mathematics Materials, Postsecondary Education. Secondary Education, Tests.

Trade and Industrial Education, Unit Plan The outline of mathematics skills provides for individualized instruction by allowing each student to complete performance tests which indicate the point at which his instruction should start. The course is divided into two parts; one covering operations with whole numbers, decimals, fractions, and tions with whole numbers, decimals, fractions, and percentage; the other dealing with ratio, proportion, square roots, fundamental geometry, and trigonometry with practical applications. The skills in part one are prerequisite to successful completion of part two which meets the performance requirement. of the second class machinist classification. The outline contains lists of texts for both parts on which the skills and assignments are based and a pretest for proficiency credit for part one. The course is structured in units (13 in part one, 10 in part two) which are divided into lessons. For each lesson specific performance objectives with corresponding assignments from the texts are indicated. Quizzes for some lessons and tests for each unit (actual forms) are included. An evaluation form for each unit has space for lesson, quiz. and unit test grades and a percentage formula for using these three types of scores in tabulating a final grade (MS)

0115 E: : 982

Mundell, Scott

Construction Industry Related Mathem enth Grade.

Arizona State Dept. of Education, Phoen Pub Date - 7

Note - 29p.: For related documents, see CF 004 714-727

Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors - \*Career Education. \*Construction Industry. Grade 7. Instructional Materials, Job Skills, Junior High Schools, Learning Activities, \*Mathematical Applications, \*Mathematics In-



struction, Teacher Developed Materials, "Teach-

ing Guides
The field tested construction industry-related mathematics unit is intended to familiarize seventh grade students with various facets of the construction industry, including the various accountions available and the mathematical abilities and other skills and training necessary to pursue an occupation in the industry. The final set of activities of the unit gives students an opportunity to plan a house and to compute the approximate cost of their "dream house." Opportunity is also provided for the students to work with various construction industry-related mathematics problems. The unit takes 15 hours of teaching time and includes whole class, small group, and individual activities. Four performance objectives are presented, with suggestions for accompanying learning activities, student evalua-tion, and enrichment activities. Half of the document consists of various student worksheets and a media and resource list. (Author/BP)

0116 ED 110 717

Hale, Guy J. And Others
Modern Mathematics as Applied to Machine
Trades: Volumes 1 and 2.

Indiana State Univ., Terre Haute. Dept. of Vocational-Technical Education.

Spons Agency—Judiana State Dept. of Public Instruction, Indianapolis. Div. of Vocational Education.

Pub Date

Pub Date—7:
Note—642p.
Pub Type— Guides - General (050)
EDRS Price - MF03/PC26 Plus Postage.
Descriptors—"Curriculum Guides. "Instructional Materials, Machinery Industry, "Machine Tool Operators, Machine Tools, Machinesta, Mathematical Applications, Mathematical Concepts, Mathematical Vocabulary." faithermatics Inc. Mathematical Vocabulary, \* fathematics Instruction, Mathematics Materials, Modern Mathematics, Research Projects, Secondary Education, Teaching Methods, Technical Education, Technical Mathematics, Technology.

Trade and Industrial Education, Worksheets

Trade and Industrial Education, Worksheets

Through a research grant funded by the Vocational Division of the Indiana State Department of Public Instruction, a developmental research project was undertaken to develop machine trades-related mathematics materials using the terminology, concepts, and methods of modern mathematics. The two volume set is designed to be utilized by first and second year machine tool technology students. Included in the document are technical information lead-in sheets, machine trades technical information sheets, technical assignment sheets, sample technical operation sheets, and sample technical job sheets. The technical information ead-in sheets present, in simple and direct manner, important terminology, concepts, and methods utilized in modern mathematics. The units may be used for both practice and reference; practice problems with answers are divided with each lead-in sheet. Each of the machine trades technical information sheets presents specific machine tool technology, technical information utilizing the modern mathematics approach, and terminology. As much as possible these units emphasize understanding of the concepts and formulas involved. Technical assignment sheets including assigned problems and-answers have been included to provide the student with practice. Appended is a partial listing of books that might be utilized for additional study in the machine trades and in modern mathematics. (Author/BP)

ED 097 498 Math for Electronics; Industrial Electronics 1: 9323.04.

Dade County Public Schools, Miami, Fla. Pub Date-May 73

Note—16p.; An Authorized Course of Instruction for the Quinmester Program Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

EDRS Price - MIPUT/PCUI Plus Postage.

Descriptors—Appliance Repairers, Course Content, Course Objectives, "Curricultum Guides, "Electrical Occupations, "Electronics. "Mathematics, Postsecondary Education. Secondary Education. Technical Education Identifiers—Florida, "Quinmester Program This curriculum guide is designed for the student in secondary."

interested in preparing for vocational electronics and related fields of electricity, emphasizing the mathematics necessary for an indepth study of electronics. Included in the course content are goals,

specific block objectives, basic algebra, powers of 10, the slide rule, basic trigonometry related to vector analysis, and logarithms. Posttest samples and a bibliography are included. (NH)

ED 085 261

Catterion, Gene And Others Relevant Mathematics.

Wynne Public Schools, Ark.

Spons Agency-Arkansas State Dept. of Education, Little Rock.; Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

-492p.; Revised Summer 1973

EDRS Price - MF02/PC20 Plus Postage.
Descriptors—Business Skills, Curriculum. Instrucion, "Instructional Materials, "Mathematical Applications, Percentage, Problem Sets, Problem Solving, Relevance (Education), Resource Materials, "Secondary School Mathematics, "Worksheets

Identifiers-Elementary Secondary Education Act Title III

This material was developed to be used with the non college-bound student in the senior high school. It provides the student with everyday problems and experiences in which practical mathematical applications are made. The package includes worksheets pertaining to letterhead invoices, sales slips, payroll sheets, inventory sheets, carpentry and other construction project plans, and other realistic applications of practical, relevant mathematics. (JP)

ED 054 927

Maber, Jerrold William How Far a Star. A Supplement in Space Oriented Concepts for Science and Mathematics Curricula

for Intermediate Grades.
National Aeronautics and Space Administration,

Washington, D.C.

Spons Agency—Office of Education (DHEW),
Washington, D.C.

Pub Date—69 Note—112p. EDRS Price - MF01/PC05 Plus Postage.

Descriptors—\*Aerospace Technology. tronomy, instructional Materials. \*Intermediate Grades, \*Mathematics, Measurement, Resource Materials, \*Science Activities, Scientific Princi-

Space science-oriented concepts and suggested activities are presented for intermediate grade teachers of science and mathematics in a book designed to help bring applications of space-oriented mathematics into the classroom. Concepts and activities are considered in these areas: methods of keeping time (historically); measurement as related to time, distance, and astronomy, including lunar photographs and measurement activities; communication in space, sound, and satellites; measuring the atmosphere; and measuring and interpreting the light from stars. A glossary of space terms, an aerospace bibliography, and a subject index are included.

ED 048 216 Technical Subjects. Mathematics. Science. Curriculum RP-27.

Ontario Dept. of Education. Toronto.

EDRS Price - MF01/PC11 Plus Postage.

Descriptors—Air Conditioning, Auto Mechanics, Building Trades, \*Curriculum Guides, Drafting, Grade 9, Grade 10, Grace 11, Grade 12, Plumbing, \*Secondary Education, \*Trade and Industrial Education, Welding, Woodworking GRADES OR AGES: Grades 9-12, SUBJECT

MATTER: Technical subjects and special mathematics and science courses for technical students. Technical subjects include air conditioning, auto mechanics, carpentry, drafting, applied electronics, masonry, painting, plumbing, service station operation, welding, and woodworking, ORGANIZA-TION AND PHYSICAL APPEARANCE: The guide is divided into three main sections, one each for a 5-year program, a 4-year program, and a 2-year program. Each section contains course outlines for from 8 to 22 courses. The guide is xeroxed and perfect bound with a paper cover. OBJECTIVES AND ACTIVITIES: No specific objectives or activities are mentioned. Most units simply list in detail topics to be covered with suggestions for timing. INSTRUCTIONAL MATERIALS: No mention. STUDENT ASSESSMENT: No mention. (RT)



#### CALCULATORS/COMPUTERS

Beavers, Mildred And Others A Course in Algebra and Trigonometry with Computer Programming.

Colorado Univ., Boulder.

Spons Agency--National Science Foundation. Washington, D.C. Pub Date-May 75 Grant-NSF-GJ-00146

Note-563p.; Not available in hard copy due to

marginal legibility of original document Pub Type— Guides - Classroom - Learner (051) EDRS Price - MF02 Plus Postage. PC Not Available from EDRS. Descriptors—\*Algebra.

escriptors—"Algebra, Algorithms, "College Mathematics, Computer Oriented Programs, Curriculum Development, Flow Charts. Higher Education. Mathematics Curriculum, Mathematics Education. Mathematics Instruction. \*Programing. Secondary Education. \*Secondary School Mathematics. Teaching Methods. \*Textbooks. Trigonometry

Identifiers-Colorado Schools Computing Science This textbook was developed by the Colorado Schools Computing Science (CSCS) Curriculum Development Project. It can be used with high school or college students in an integrated presentation of second-year algebra, trigonometry, and beginning computer programing. (MK)

ED 175 705 Study Guide in Digital Computing and Related Mathematics.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C. Pub Date-64

Note-17p.

Pub Type— Reference Materials (130)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors— Algorithms, Bibliographies, Computers, Computers, Curriculum, Higher Education, Inservice Education, \*Instruction, Mathematical Applications, \*Mathematics Educations, \*Mathematics Educations, \*Mathematics Educations, \*Mathematics Educations, \*Mathematics Educations, \*Mathematics Education, cation, \*Problem Solving, Secondary Education, Secondary School Mathematics, Study Guides Lentifiers—School Mathematics Study Group This SMSG study guide is designed to aid the teacher in acquiring familiarity with digital com-

puter concepts or to further his/her knowledge of the field. Suitable references for important topics are categorized as central, peripheral, or advanced. Topics covered include: (1) nature and organization of computers; (2) problem analysis; (3) algorithmic language; (4) additional sources of problems; (5) mathematics of computation; (6) applications of computer systems; (7) computer operation; and (8) non-technical views of the computer field. (MP)

0202

Schoen. Harold L. Calculators in Mathematics - How Should They Be

Pub Date-Apr 79

Note-22p.; Paper presented at the annual meeting of the American Educational Research Associa tion (San Francisco, California, April 8-12, 1979);

Contains occasional light and broken type
Pub Type—Speeches/Meeting Papers (150)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Calculators, Conference Reports,
"Educational Research, Elementary Education. \*Elementary School Mathematics. \*Learning Activities, Mathematical Concepts. \*Mathematics Curriculum, Mathematics Education, ematics Instruction, Problem Solving, Worksheets

Identifiers-\*American Educational Research Association

This paper was presented at the 1979 meeting of American Educational Research Association (AERA) in San Francisco. It describes specific examples of calculator-aided mathematics learning activities for children in grades 2-6. These examples illustrate a variety of topics and types of learning which can be enhanced by a range of capabilities of a four-function calculator. Activity sheets and explanations of their uses are included. The activities are categorized by their instructional goals, and are designed to teach counting and numeration, basic facts, some selected number concepts, estimation, and problem solving. A discussion of the role of the calculator in mathematics learning as illustrated by

the sample activities is also presented. (HM)

0203 ED 171 57-

Suvdam, Marilyn N., Ed.

Information Bulletins from the Calculator Information Center. Bulletins 1-7.

Ohio State Univ., Columbus Calculator Information Center.

Spons Agency-National Inst. of Education (DHEW), Washington, D.C.
Pub Date--79

ote---30p.

Pub Type -- Guides - General (050) - Guides -Non-Classroom (055)

EDRS Price · MF01/PC02 Plus Postage.
Descriptors—\*Administrator Education. \*

\*Elementary School Mathematics. Elementary Secondary Education. \*Instructional Materials, \*Mathematics Instruction. \*Secondary School Mathematics, \*Teacher Workshops, Technology

Identifiers-Classroom Use

Presented are seven Information Bulletins from the Calculator Information Center. Each addresses concerns that have arisen as teachers consider the use of calculators or begin to use calculators. Bulletin No. 1, prepared by Higgins, discusses "Types of Calculators." The second bulletin, compiled by Channell, presents some suggested activities for secondary school teachers. The third bulletin is a compilation of "Suggestions for Calculator Selection" at the elementary school level. Fourth is an informa-tion bulletin for administrators, prepared by Jones and Bosley. Emictin No. 5, developed by Gawronski, is on "Leading a Calculator Workshop." The sixth bulletin, prepared by Denman, contains suggestions for using calculators in grades 1-3, while the seventh bulletin, developed by Immerzeel and Ockenga, presents activities for using calculators in grades 4-6. (MS)

0204 ED 171 573

Suvdam, Manivn N.

The Use of Calculators in Pre-College Education: A State-of-the-Art Review.

Ohio State Univ., Columbus. Calculator Information Center.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79

Note-21p. Pub Type- Information Analyses (070) EPRS Price - MF01/PC01 Plus Postage.
Descriptors— \*Calculators. \*Educational Change.

Elementary Secondary Education, Instructional Materials, Mathematics Education, Mathematics ics Instruction, \*Research Reviews (Publications), \*State of the Art Reviews

This document actually consists of two state-ofthe-art reviews on the use of calculators in educa-tion, one prepared in April 1978 and the second in May 1979. Each presents a concise summary of current status, with sections elaborating on the extent of use of calculators in schools, research on calculator effects, the development of instructional materials, and continuing concerns for research and development effort. References are included. (MS)

Suydam, Marilyn N.

Calculators: A Categorized Compilation of Refer-

Calculator Information Center, Columbus, Ohio. pons Agency—Nations' Inst. of Education (DHEW), Washington, D.C.

Pub Date—Jun 79
Contract—400-79-0025
Note—188p.; For related document, see SE (26 880: Contains occasional light type
Pub Type—Reference Materials - Bibliographies

EDRS Price - MF01/PC08 Plus Postage. Descriptors—\*Annotated Bibliographies, \*Calculators. Computation. Educational Change. Instructional Materials. Literature Reviews. Mathematics Curriculum. Mathematics Education. Mathematics Instruction. Research. source Materials, Teaching Methods Identifiers—\*National Institute of Education

This document consists of a list of the references on calculators which were collected by the Calculator Information Center prior to June 1979. Included are references which previously appeared on bulle-tins distributed by the Center, plus articles from newsletters and similar less readily available sources and from non-American sources. Most references are annotated; all include a limited set of descriptors or keywords which denote the focus of contents of the reference. At the end of the listing is an index for each descriptor (MS)

ED 167 426

Suvdam, Marityn N., Comp.

Reference Bulletins from the Calculator Information Center.

Calculator Information Center, Columbus, Ohiopons Agency National Inst of Education (DHEW), Washington D.C. Spons

Pub Date Apr 79 Contract 400-77-0030

Note -90p; Contains occasional light and broken type

Pub Type Reference Materials Bibliographies (131)

EDRS Price - MF01 PC04 Plus Postage.
Descriptors Annotated Bibliographics. \*Bibliographics. \*Calculators. \*Computation. Elementary Secondary Education, \*Instruction, Literature Reviews, \*Mathematics Education, Postsecondary Education, \*Research Reviews (Publicatio

These 18 bulletins list references on the uses of calculators pertinent to education. They were published at intervals to provide teachers and other interested persons with sources of information about calculator activities and research findings. The bulletins focus on several categories of references (1) articles on instruction with hand-held calculators; (2) books on calculator applications; (3) research on hand-held calculators; (4) references on calculators at the post-secondary level; (5) references on desk calculators, (6) article, on the prosand cons or song hand-held calculators; and (7) articles on selecting a calculator. Most of the bulletins contain annotations, several include an introductory synthesis. (Author)

ED 161 758 Calculator Handbook. Problem Solving Project.

Pub Date -- 75 Note -- 39p.: For related documents, see SE 025 249-251; Contains occasional light and broken

type Pub Type--- Books (010)

EDRS Price - MF01. PC02 Plus Postage. Descriptors—\*Calculators, \*Computation,

mentary Education, \*Elementary School Mathematics, Instruction, \*Instructional Materials, \*Learning Activities, Pattern Recognition, \*Prob-lem Sets, \*Problem Solving Identifiers—Estimation (Mathematics), Number

Operations

These student works a include activities in volume, inequalities, decimal equivalents of fractions, and percents, all to be worked with a calculator (MP)

0208 ED 161 757 Getting to Know the Calculator. Problem Solving

Northern Iowa Univ., Cedar Falls, Mathematics Learning Center.

Pub Date---75

Note-27p.; For related documents, see SE 025 250-251; Not available in hard copy due to mar-

ginal legibility of original document Available from The Director, Mathematics Learning Center, University of Northern Iowa, Cedar Falls, Iowa 50613 (no price quoted) Pub Type--- Reports - Research (143)

EDRS Price - MF01 Plus Postage. PC Not Availablc from EDRS.

Descriptors - \*Calculators. \*Computation. mentary Education. \*Elementary School Mathematics, Instruction, \*Instructional Materials, \*Learning Activities, Mathematical Formulas, Pattern Recognition, \*Problem Sets, \*Problem Solving

Identifiers- Estimation (Mathematics). Number Operations

Many problems and activities which can be worked with a calculator are contained in this booklet. The problems include: pattern recognition, combinations of operations, estimation, squares and square roots, rate problems, area, and volume. Chapter topics include: getting to know the calculator, single-step problems, using formulas, and multiple-step problems. (MP)



ED 146 009

0209 Humphreys, Casey And Others Calculator Cookery.

Minneapolis Public Schools, Minn.

Pub Date—[77]
Note—110p.; Contain\* occasional colored pages

Note—110p.; Contains occasional colored pages which may not reproduce well Pub Type— Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—"Calculators, Consumer Education, Curriculum, Elementary Secondary Education, "Instructional Materials, "Learning Activities, Mathematical Applications, Mathematics Education, "Number Concepts, "Secondary School Mathematics, "Teacher Developed Materials, Worksheets Worksheets

This valuable collection of materials was developed to incorporate the calculator as an instruc-tional aid in ninth- and tenth-grade general and basic mathematics classes. The materials are also appropriate for grades 7 and 8. After an introductory section which teaches the use of the calculator, four games and activities are described. For these and subsequent lessons, prior knowledge needed, objectives, materials, and directions are clearly stated. The third set of lessons is on exploring algonthms, with multiplication by tens, hundreds, and thousands considered. Pattern searches comprise several lessons; estimation, calculating in circles. consumer applications, and environmental applications are the focus of remaining sets of lessons. An annotated list of references is also included. All materials are in a form ready to be used by teacher and copied for students. (MS)

ED 143 511

Charp. Sylvia And Others Algorithms, Computation and Mathematics (Fortran Supplement). Teacher's Commentary. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

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Pub Date—66
Note—104p.; For related documents, see SE 022
983-987; Not available in hard copy due to marginal legibility of original document ub Type— Guides - General (050)

EDR 7 Price - MF01 Plus Postage. PC Not Availatle rom EDRS.

"escriptors—"Algorithms, "Computers, "Mathematics Education, Programing Languages, Secondary Education, "Secondary School ondary Education, \*Secon Mathematics, \*Teaching Guides

dentifiers—"FORTRAN Programing Language,
"School Mathematics Study Group
This is the teacher's guide and commentary for
the SMSG textbook Algorithms, Computation, and Mathematics (Fortran Supplement). The teacher's commentary provides background information for the teacher, suggestions for activities found in the Fortran Supplement, and answers for exercises and activities. The course is designed for nigh school students in grades 11 and 12. Access to a computer is highly recommended. (RH)

ED 143 510

Charp. Sylvia And Others
Algorithms, Computation and Mathematics (Fortran Supplement). Student Text. Revised Edi-

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date—66
Note—137p.: For related documents, see SE 022
983-988; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Algorithms. \*Computer. \*Instructional Materials, "Programing Languages. Secondary Education. "Secondary School Mathematics. "Textbooks

Mathematics. Textoooks

Identifiers—\*FORTRAN Programing Language.
\*School Mathematics Study Group
This is the student's textbool for Algorithms,
Computation, and Mathematics (Fortran Supplement). This computer language supplement is split off from the main text to enable a school to choose the computer language desired, and also to make it easier to modify the course as languages change. npters in the text are designed to add language capability. Each can be read in conjunction with the main text, section by section. (RH)

ED 143 509

Charp, Sylvia And Others
Algorithms, Computatior and Mathematics (Algol Supplement). Teacher's Commentary. Revised

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Washington, D.C.
Pub Date—66
Note—113p.: For related documents, see SE 022
983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Guides - General (050)
EDRS Price-MF01 Plus Postage. PC Not Availa-

ble from EDRS.

Descriptors-Algorithms, \*Computers, \*Mathematics Education, \*Programing Languages, Secondary Education. \*Secondary School condary Education. Secondary Education. Mathematics. Teaching Guides School

Identifiers—\*ALGOL Programing Languages.

\*School Mathematics Study Group

This is the teacher's guide and commentary for the SMSG textbook Algorithms, Computation and Mathematics (Algol Supplement). This teacher's commentary provides background information for commentary provides background information to the commentary provides background information for the commentary provides background information for the commentary provides background in the commen the teacher, suggestions for activities found in the student's Algol Supplement, and answers to exercises and activities. The course is designed for high school students in grades 11 and 12. Access to a computer is highly recommended. (RH)

ED 143 508

Charp. Sylvia And Others

Algorithms, Computation and Mathematics (Algol Supplement). Student Text. Revised Edition. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation.
Washington, D.C.
Pub Date—66
Note—138p.; For related documents, see SE 022
983-988; Not available in hard copy due to marginal legibility of original document
Pub Type— Books (010)

EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.
Descriptors—Algorithms, \*Computers. \*Instructional Materials. \*Programing Languages. Secondary Education. \*Secondary School Mathematics, \*Textbooks Identifiers—\*ALGOL Programing Languages. \*School Mathematics Study Group

This is the student's textbook for Algorithms. Computation, and Mathematics (Algol Supplement). This computer language supplement is split off from the main text to enable a school to choose the computer language desired, and also to make it easier to modify the course as languages change. The chapters in the text are designed to add language capability. Each can be read in conjunction with the main text section by section. (RH)

0214 ED 143 507

Charp, Sylvia And Others
Algorithms, Computation and Mathematics. Teacher's Commentary. Revised Edition.
Stanford Univ. Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation, Washington, D.C.
Pub Date—66
Note—302p.: For relat documents, see SE 022
983-988; Not availab, in hard copy due to marginal legibility of ordinal documents.

ginal legibility of original document ub Type— Guides • General (050)

EDRS Price • MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—\*Algorithms. \*Computers. \*Instruc-

tional Materials. Mathematics Education, Programing Languages. Secondary Education.
\*Secondary School Mathematics. \*Teaching Guides

Identifiers-School Mathematics Study Group

The materials in this teacher's guide are designed for about 18 weeks of study by secondary school students. For maximum benefit, the student needs contact with a computer, primarily for verifying and trouble-shooting the algorithms which he or she has constructed. The course is usually taught for grade 11 or 12 students. The commentary contains background material, suggerions for use, and answers for exercises for each chapter of the student text. Comments indicate the course requires more preparation time for the teacher than most high school mathematics courses; use of a student assistant is recommended (RH)

0215 ED 143 506

Charp, Sylvia And Others

Algorithms, Computation and Mathematics, Student Text. Revised Edition. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date - 66 Note - 456p.; For related documents, see SE 022 984-988; Not available in hard copy due to marginal legibility of original document; Pages 3-6 missing; Best Copy Available
Pub Type—Books (010)
EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors - \*Algorithms. \*Computers. \*Instruc-

tional Materials, Programing Languages, Secondary Education, \*Secondary School Mathematics. \*Textbook: Identifiers—\*School Mathematics Study Group

This text contains material designed for about 18 weeks of study at grades 11 or 12. Use of a computer with the course is highly recommended. Developing an understanding of the relationship between mathematics, computers, and problem solving is the main objective of this book. The following chapters are included in the book: (1) Algorithms, Language, and Machines: (2) Input, Output, and Assignment; (3) Branching and Subscripted Variables: (4) Looping: (5) Functions and Procedures: (6) Approximations: (7) Some Mathematical Applications; and (8) Compilation and Some Other Non-Numeric Problems Also included is a discussion on future computer applications. (RH)

0216 ED 141 126

Averett. Dorothy M. And Others
Using the Mini-Calculator to Teach Mathematics. Philadelphia School District, Pa. Office of Curriculum and Instruction. Pub Date-7

Note-120p., Not available in hard copy due to

copyright restrictions
Available from--Dr. Alexander Shevlin, Director,
Instructional Publications and Materials, Stevens Ad- rative Center 13th and Spring Garden Streets, Philadelphia, PA 19123 (Order Number

S47870, \$3.00)
Pub Type — Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—"Calculators. "Elementary School Mathematics. Elementary Secondary Education. "Fundamental Concepts. "Instructional Material Assessments School School School Secondary School als. Mathematics Education. \*Secondary School Mathematics. \*Teaching Guides

This booklet is designed to aid teachers in the use of the mini-calculator in the classroom. Included in this booklet are activities and suggestions for the use of the calculator from the primary grades through the secondary mathematics courses. Each topic in the booklet includes background information for the teacher, suggested activities, games, and sample problems. Included in the publication are the following topics: (1) Selecting a Mini-Calculator for Classroom Use: (2) Preparing to Use the Mini-Cal-culator; (3) Classroom Uses of Mini-Calculators; (4) The Keyboard: Concepts and Basic Operations: (5) Talking Mini-Calculators; and (6) a selective bibliography. (RH)

ED 116 928

Kim. K. Ed. And Others

Base Numeration Systems and Introduction to Computer Programming.

Institute for Services to Education, Inc., Washington. D.C.

Spons Agency—National Inst of Education (DHEW), Washington, D.C. Bureau No. BR-7-0867 Pub Date 71 Contract—OEC-0-8-070867-0001

Note-64p.; Appendix material from ED 084 936; Occasional marginal legibility

Programs. \*Computer Science Education. Education. Guides, Higher Education, Instruction, \*Instruc-tional Materials, Mathematics Education, Num-ber Systems, Programing, Secondary Education, \*Secondary School Mathematics, \*Teaching

Guides

Identifiers-FORTRAN Language, Thirteen Col-

lege Curriculum Program

This teaching guide is for the instructor of an introductory course in computer programming using FORTRAN language. Five FORTRAN programs are incorporated in this guide, which has been used as a FORTRAN IV SELF TEACHER. The base as a FORIKAN IV SELF TEACHER. He base cight, base four, and base two concepts are integrated with FORTRAN computer programs, geoblock activities, and related exercises. Each statement of the first FORTRAN program is described in detail with suggested discussion questions and activities. (Subsequent programs are given without detail.) The FORTRAN programs included are: (1) change base eight numerals to base on numerals, (2) determine the number of significant places for a given input data. (3) list the even numbers less than 200 for the base eight, (4) give the integral powers of ten in scientific notation, and (5) give the multiples of four in the base eight. Teaching suggestions include the modification of illustrated programs as well as activities for teaching of the design of a simple computer, unconditional and conditional transfer statements, and DO LOOPS. Fixed point (integer) system and floating point systems of computation in the digital computer are described. Problems with mathematical operation symbols complete the activities in the manual. (JBW)

0218

ED 116 927

Barnes, Bernis, Ed. And Others

It's a Computerized World: Basic Language for GE Time-Sharing System.

Institute for Services to Education, Inc., Washington, D.C.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-0867
Pub Date—70
Contract—OEC-0-8-070867-0001

Note—53p.; Appendix material from ED 084 936; Occasional marginal legibility

Programs, \*Computer Science Education, Guides, Higher Education, Instruction, \*Instruc-tional Materials, Programing, Programing/Lan-guages, Secondary Education, \*Secondary School

Mathematics, \*Teaching Guides
Identifiers—BASIC Language, Thirteen College

Curriculum Program
This instructional unit of five lessons and four appendices is designed to acquaint both teacher and student with the elementary aspects of computer programming. The first two sections contain background information in computer processes and in BASIC language for a time-sharing system for those teachers who have limited backgrounds and experiences in computer science. Lessons 1 and 11 cover giving instructions in English and in BASIC; lesson III deals with translating instructions from English into BASIC; lesson IV introduces conditional con-trol statements through simple programs; and lesson V looks into the use of subscripts in a SASIC program. Each lesson contains suggested teacher questions and related exercises for studen's. Appendix A contains two programs to be put on tape and checked during lessons II and IV. Appendix B contains six handouts for use with lessons II through VI. Appendix C contains the analysis of programs to find the roots of quadratic equations and also a summary of BASIC symbols. Appendix D contains programs for sums of series dividing a line, and changin, bases. (JRW)

0219 ED 081 193 Teaching Guide and Problem Supplement. A Publication of the Exemplary Project Problem Solving Computer Style 1969-1970.

New Orleans Public Schools. La.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Report No. - DPSC-67-3834

Pub Date—70 Grant—OEG-3-7-70384-4813 Note—203p.

EDRS Price · MF01/PC09 Plus Postage.

Descriptors—Algebra, Chemistry, \*Computer Assisted Instruction. Computers, \*Computer Science Education, Mathematics, Physics, \*Problem Solving, \*Programing, Secondary Education, Secondary School Students, \*Teaching Guider. Ingonometry
Hentifiers—Elementary Secondary Education Act

Title III, FORTRAN Programing Language, IBM

Secondary school teachers incorporating the use of a computer in algebra, trigonometry, advanced mathematics, chemistry, or physics classes are the individuals for whom this book is intended. The content included in it is designed to aid the learning of programing techniques and basic scientific or mathematical principles, and to offer some solutions to illustrative problems. Eight units are devoted to a step-by-step explanation of the FORTRAN IV language and programing, with material presented in a manner which assists the teacher in developing lectures and other forms of instruction which facilitate student imitation and encourage early operation of his initial attempt at programing. Following this introduction to FORTRAN and to programing is a problem supplement with five sections, one each devoted to algebra, trigonometry, advanced math. chemistry, and physics. A she inbliography is also included. (Author/LB)

ED 057 581

Lukas, George And Others
LCGO Teaching Sequences on Strategy in Problem-Solving and Story Problems in Algebra. Teacher's Text and Problems.

Bolt, Beranek and Newman, Inc., Cambridge, Mass.
Spons Agency—National Science Foundation,
Washington, D.C.
Report No.—8-2165
Pub Date—30 Jun 71

Note—226p; Programming-Language as a Conceptual framework for Teaching Mathematics, Volume Three: See also EMC 9 419, EM 009 420, EM 009 422

EDRS Price • MF01/PC10 Plus Postage.
Descriptors—°Computer Assisted Instruction,
°Computer Programs. °Mathematics Instruction. \*Problem Solving, Secondary School Mathemat-

Identifiers-Project LOGO

In order to provide high school students with general problem-solving skills, two LOGO computer-assisted instruction units were developed—one on the methods and strategies for solution and a second on the relation between formal and informal representations of problems. In both cases specific problem contexts were used to give definition and articulation to central notions like problem, problem form, solution method, and optimal strategy. The unit on strategies in problem solving illustrates strategy formation in two contexts-extrapolating number sequences and exploring mazes. The unit on story problems in algebra attempts to help students learn to convert a story problem into formal mathematical terms. For more information about the LOCO project, see volumes I, II, and IV of the report (EM 009 419, EM 009 420, and EM 009 422). (JY)

0221

ED 057 580

Grant, Richard And Others
LOGO Teaching Sequences on Numbers and Functions and Equations. Teacher's Text and Prob-

Bolt, Beranek and Newman, Inc., Cambridge, Mass. Spons Agency—National Science Foundation, Washington, D.C.

Report No.—R-2165 Pub Date—30 Jun 71

Note—230p.; Programming-Languages as a Conceptual Framework for Teaching Mathematics, Volume Two; See also EM 009 419, EM 009 421. EM 009 422

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—\*Computer Assisted Instruction.

\*Mathematics Instruction, Numbers. \*Programing Languages, Set Theory. \*Teaching Guides Identifiers-Project LOGO

The teacher's texts for two teaching sequences in the LOGO mathematics course are presented in this second volume of a four-volume report. The material presented here is designed to be a broad overview of the application of LOGO to the topics of numbers and functions. A variety of alternative paths and approaches are presented; in each case the emphasis is on crucial points and on possible pitfalls and difficulties. The sequence on numbers is not meant to accompany a first exposure to the subject. but rather, a careful retracing of steps. The level of presentation in this unit is extremely detailed, and the reader is encouraged, on first reading, to skip around as his interests dictate. The sequence on functions is written more freely. The idea of function as a black-box is here concretely realized as are

many other aspects of the set-theoretic approach to functions which otherwise trouble students by their "vagueness." For Volumes I, III, and IV of the report see EM 009 419, EM 009 421, and EM 009 422. (Author, JY)

0222

ED 052 605

Koetke, Walter

Computers in the Classroom: Teacher's Resource Manual for Algebra.

Digital Equipment Corp., Maynard, Mass

Spons Agency Massa, asetts State Dept of Education. Boston: Office of Education (DHFW), Washington. D.C. ib Date--71

Pub Date ... Note = 134p

Available from Digital Equipment Corporation, Educational Marketing (5-2), 146 Main Street Maynard, Massachusetts (11754 (53 (0)) EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Secondary School Mathematics, "Teaching Conducts of Mathematics Materials, Problem Sets, Programing, Remedial Mathematics, "Secondary School Mathematics, "Teaching Guides Demonstration programs, possible assignments

Demonstration programs, possible assignments for students (with solutions), and remedial drill programs for students to use are presented to aid teachers using a computer or a computer terminal in the teaching of algebra. The text can be followed page by page or used as a well-indexed reference work. and specific suggestions are made on how and where to use the computer within the schools' present curriculum. Almost all topics discussed are completely self-contained. The order of major topics follows that used in the Modern Algebra series by Dolciani, Berman, and Wooton: arithmetic operations, variables, and sets; solving equations and inequalities in one variable; using the properties of equality, addition, and multiplication when solving equations, negative numbers; solving first degree equations and inequalities; operations with polynomials; and factoring. Sample programs are written using the Digital Control of the tal Equipment Corporation's FOCAL programing language, but they can be translated into any other interactive language that is suitable for student use. The manual is in foose-leaf form and provides a complete index. (Author/JY)



#### CALCULUS

Stemberg, Warren Walker, Robert J. 0300

Calc. 'us: A Computer Oriented Presentation, Part 1 [a d] Part 2. Center for Research in Coll. Instruction of Science

and fathematics, Tallahassee, Fla. Spons Agency-National Science Foundation.

Washington, D.C.

Pub Date-Jun 70

Grant-NSF-GY-3696

Note-1.165p.; Contains occasional light and broken type

Pub Type- Guides - Classroom - Learner (051) EDRS Price - MR09/PC47 Plus Postage.

Descriptors—\*Algorithms, \*Calculus, \*College Mathematics, \*Computer Oriented Programs, Computers. Curriculum Development. Flow Charts, Higher Education, Mathematical Applications. "Mathematics Curriculum. Mathemat-Education. Mathematics Instruction. \*Mathematics Materials, Textbooks

Lientifiers-Functions (Mathematics) Parts one and two of a one-year computer-oriented calculus course (without analytic geometry) are presented. The ideas of calculus are introduced and motivated through computer (i.e., algorithmic) concepts. An introduction to computing via algorithms and a simple flow chart language allows the book to be self-contained, except that material on programming languages is excluded in order to allow the use of any language. Chapter topics include sequences, integrals, applications, functions, maxime, chain rule, derivatives, logarithmic and exponential functions, infinite series, and differential equations. (MP)

0301 ED 173 147

Herriot, Sarah T. And Others

Calculus of Elementary Functions, Part III. Teacher's Commentary. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-68

Note-240p.; For related documents, see ED 143 515 and ED 143 517; Contains occasional light and broken type

Pub Type— Guides - Classroom - Teacher (052) EDRS Price - MF01/PC10 Plus Postage.

Descriptors-Calculus, Curriculum, Curriculum Guides, \*Instruction, Mathematics Education. Secordary Education, "Secondary School Mathematics

Identifiers—\*Functions (Mathematics). \*School Mathematics Study Group

This is part three of a three-part manual for teachers using SMSG high school text materials. Detailed solutions are given to all the exercises in the text. Chapter topics include: (1) area and the integral: and (2) differentiation theory and technique. (MP)

ED 173 146

Beck, A. And Others Calculus, Part 2. Teacher's Commentary. Unit 69. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-65

Note-35 ip.; For related document, see SE 028 240; Contains occasional light and broken type Pub Type- Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC15 Plus Postage.

Descriptors—\*Calculus, Curriculum, \*Curriculum Guides, \*Instruction, \*Mathematical Applications. Mathematics Education. Secondary Educa-tion. \*Secondary School Mathematics Identifiers—\*Functions (Mathematics). \*School

Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG high school text materials. A chapterby-chapter commentary on the text and answers to all the exercises are given. Chapter topics include: (1) area and integral; (2) basic integral theorems: (3) logarithmic and exponential functions: (4) growth. decay and competition; and (5) integration. (MP)

0303 ED 173 145

Beck, A. And Others Calculus, Part 1, Teacher's Commentary, Unit 69. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation.
Washington, D.C.
Pub Date-65
Note-485p.; For related document, see SE 028

241; Contains occasional light and broken type
Pub Type—Guides - Classroom - Teacher (052)
EDRS Price - MF02/PC20 Plus Postage.
Descriptors—"Calculus, Curriculum. "Curriculum
Guides. "Instruction. "Mathematical Applica-

tions. Mathematics Education. Secondary Educa-tion. \*Secondary School Mathematics Identifiers—\*Limits (Mathematics), \*Second Mathematics

ematics Study Group

This is part one of a two-part manual for tereners using SMSG high school text materials. A chi pterby-chapter commentary on the text and answers to all the exercises are given. Chapter topics include the idea of the derivative, limits and continuity, differentiation, and applications of the derivative. (MP)

0305 ED 173 099 Herriot, Sarah T. And Others Calculus of Elementary Functions, Part III. Stu-dent Text. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C. Pub Date—68

Note—233p.; For related documents, see SE 027 905 and ED 143 516; Contains occasional small.

905 and ED 143 516; Contains occasional small. light and broken type
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC10 Plus Postage.
Descriptors— \*Calculus, Curriculum, \*Graphs, Induction, \*Instruction, Mathematics Education, Secondary Education, \*Secondary School Mathematics, \*Textbooks
Identifiers— \*Functions (Mathematics). \*School Mathematics Study Group.

Mathematics Study Group
This is part three of a three-part SMSG calculus
text for high school students. The aim of the text is to develop some of the concepts and techniques which will inable the student to obtain important information about graphs of elementary functions. Chapter topics include area and the integral, differentiation theory and technique, mathematical induction, and further techniques of integration. (MP)

Herriot, Sarah T. And Others Calculus of Elementary Functions, Part I, Student Text. Preliminary Edition. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—68
Note—338p.; For related documents, see SE 027
906 and ED 143 514; Contains occasional light and broken type

Pub Type—Guides - Classroom - Learner (051) EDRS Price - MF01/PC14 Plus Postage. Descriptors—\*Calculus, Curriculum, Graphs. \*In-

struction, Mathematics Education, Secondary Education, \*Secondary School Mathematics. \*Textbooks, \*Trigonometry

Identifiers-Functions (Mathematics). \*Polynomi-

als. "School Mathematics Study Group
This is part one of a three-part SMSG calculus
text for high school students. The aim of the text is to develop some of the concepts and techniques which will enable the student to obtain important information about graphs of elementary functions. Chapter topics include: (1) polynomial functions; (2) the derivative of a polynomial function; and (3) circular functions. (MP)

ED 164 304

Beck, A. And Others Calculus, Part 3, Teacher's Commentary. Unit No. 71. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation.
Washington, D.C.

Pub Date—65 Note—277p.: For related documents, see SE 025 456-458; Contains light and broken type Pub Type— Guides - General (050)

EDRS Price - MF01 PC12 Plus Postage.
Descriptors - \*Calculus, \*Curriculum, \*Instruction,
Instructional Materials, \*Mathematical Applications, Mathematics Education, Secondary Educa-tion, \*Secondary School Mathematics, \*Teaching

Identifiers - \*School Mathematics Study Group

This is part three of a three-part manual for teachers using SMSG high school text materials. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for key concepts and answers for all exercises in each chapter are provided. Chapter topics include: (1) vectors and curves; (2) mechanics; (3) numerical analysis; (4) sequences and series; and (5) geometrical optics and waves. (MP)

0308 ED 164 303

Beck, A. And Others Calculus, Part 3, Student's Text. Unit No. 70. Revised Edition.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date—65
Note—360p.: For related documents, see SE 025
456-459; Contains light and broken type
Pub Type— Books (010)

EDRS Price • MF01/PC15 Plus Postage.
Descriptors—\*\*Calculus, \*\*Curriculum, \*\*Instructional Materials, \*\*Mathematica! Applications.

text for high school students. One of the goals of the text is to present criculus as a mathematical disci-pline as well as presenting its practical uses. The authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the origins of the ideas of the calculus in practical problems, attempts to express these ideas precisely and develop them logically, and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) vectors and curves; (2) mechanics: (3) numerical analysis; (4) sequences and series; and (5) geometricl optics and waves. (MP)

0309 ED 164 302

Beck, A. And Others Calculus, Part 2, Student's Text, Unit No. 67. Revised Edition. Stanford Univ., Calif. School Mathematics Study

Group. Agency-Nationa Science Foundation,

Washington, D.C. Pub Date 65

Note—304p.; For related documents, see SE 025 456-459; Contains occasional light and broken

Type-- Books (010)

Pub Type-- Books (010)
EDRS Price - MF01/PC13 Plus Postage.
Descriptors—\*Calculus. \*Curriculum, \*Instructional Materials. \*Mathematical Applications.
Secondary Education. \*Secondary School Mathematical Applications. ematics. \*Textbooks Identifiers—\*School Mathematics Study Group This is part two of a three-part SMSG calculus

text for high school students. One of the goals of the text is to present calculus as a mathematical discipline as well as presenting its practical uses. The authors emphasize the importance of being able to authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the ori-gins of the ideas of the calculus in practical prob-lems; attempts to express these ideas precisely and develop them logically; and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) area and integral: (2) basic integral theorems: (3) logarithmic and exponential functions: (4) growth,

decay, and competition; and (5) integration. (MP) ED 164 301

Beck A. And Others Calculus, Part I, Student's Text, Unit No. 66. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency--National Science Foundation.

Washington, D.C.

Pub Date -- 66 Note -- 373p.; For related documents, see SE 025 457-459; Contains occasional light type



Pub Type—Books (010)
EDRS Price - MP01/PC15 Plus Postage.
Descriptors—"Calculus, "Curriculum, "Instructional Materials, "Mathematical Applications,

Mathematics Education, Secondary Education,
"Secondary School Mathematics." Textbooks
Identifiers..." School Mathematics Study Group

This is part one of a three-part SMSG calculus text for high school students. One of the goals of the text is to present calculus as a mathematical discipline as well as presenting its practical uses. The authors emphasize the importance of being able to interpret the concepts and theory in terms of models to which they apply. The text demonstrates the origins of the ideas of the calculus in practical problems: attempts to express these ideas precisely and develop them logically; and finally, returns to the problems and applies the theorems resulting from that development. Chapter topics include: (1) Introduction: (2) The Idea of Derivative: (3) Limits and Continuity; (4) Differention, and (5) Applications of the Derivative. (MP)

0311 ED 156 452 l istructional Guide for Calculus, Secondary Mathematics.

Montgomery County Public Schools, Rockville,

Pub Date-78

Note-210p.: Not available in hard copy due to copyright restrictions

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Behavioral Objectives, Descriptors—Benavioral Objectives, "Course Descriptions, Educational Objectives, Evaluation, "Instructional Materials, Mathematics Materials, Secondary Education, "Secondary School Mathematics, "Teaching Guides The purpose of this instructional guide is to assist teachers of calculus in the organization and presentation of the course content to best meet the needs."

tation of the course content to best meet the needs of the student. The behaviors expected of the stu-dent have been organized into eleven units. These units include the topics recommended for those stucents preparing for the CEEB advanced placement BC test administered in May of each year. Within each unit is an introduction, a list of the instruc-tional objectives for that unit, at least two sample performance objectives for most instructional objectives, sample assessment measures and answers for the assessment measures. Special features of this guide are a Performance Objective Index which keys each objective to currently approved text materials, and a list of suggested assignments. (MN)

ED 143 554 Twersky, Victor

Studies in Mathematics, Volume XV. Calculus and

Stanford Univ., Calif. School Mathematics Study

Group.
Spons Agency—National Science Foundation.

Washington, D.C.

Pub Date—67 Note—151p.; For related documents, see SE 323 028-041

1. h Type—Books (010)
1.980. Price - MF01/PC07 Plus Postage.
1.050. ptors—\*Calculus, College Mathematics, \*In-"Physical Sciences, "Secondary School Mathematics, "Textbooks
Identifiers—"School Mathematics Study Group

This book is designed to illustrate how one general method of calculus is used in many different sciences and how different methods of calculus have furthered the development of essentially one field of science. The material is written so that it could serve as a math-science supplement for many courses. Chapters included are: (1) Introduction: (2) Growth, Decay, and Competition; and (3) Geometrical Optics and Waves. The Introduction contains suggestions for teaching, additional readings, and sequence of materials. (RH)

ED 143 517

Herriot. Sarah T. And Others Calculus of Elementary Functions, Part II. Teacher's Commentary. Revised Edition.
Stanford Univ.. Calif. School Mathematics Study

Group.

oons Agency-National Science Foundation. Vashington, D.C.

up Date—69 lote—463p.; For related documents, see SE 022 991-993: Contains occasional light and broken

Pub Type: Guides - General (050)

EDRS Price - MF01/PC19 Plus Postage.

Descriptors—"Algebra, "Calculus, "Instructional Materials, Mathematics, Number Concepts, Se-

condary Education, "Secondary School Mathematics, "Teaching Guides Identifiers--"School Mathematics Study Group

This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This teacher's guide is for Part II of the course. It is designed to follow Part I of the text. The guide contains background information, suggested instructional materials, and answers to student exercises. (RH)

ED 143 516

Herriot. Sarah T. And Others Calculus of Elementary Functions. Part 11. Student Text. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency - National Science Foundation, Washington, D.C. Pub Date-69

Note-467p.; For related documents, sec SE 022 991-994; Not available in hard copy due to marginal legibility of original document Pub Type— Books (010)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors---\*Algebra, \*Calculus. \*Instructional Materials. Mathematics, Number Concepts, Secondary Education. \*Secondary School Mathematics. \*Textbooks

Identifiers--- School Mathematics Study Group This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This text, Part II. contains material designed to follow Part I. Chapters included in this text are: (6) Derivatives of Exponential and Related Functions; (7) Area and the Integral; (8) Differentiation Theory and Technique; and (9) Integration Theory and Technique. Appendices include: (3) Mathematical Induction; (4) Further Techniques of Integration; (5) The Integral for Monotone Functions; (6) Inequalities and Limits: (7) Continuity Theorems; (8) More about Integrals; and (9) Logarithm and Exponential Functions as Solutions to Differential Equations.

0315 ED 143 515

Herriot, Sarah T. And Others Calculus of Elementary Functions, Part I. Teacher's Commentary. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—Na Washington, D.C. -National Science Foundation, Pub Date-69

-293p.; For related documents, see SE 022 991-994; Contains occasional light and broken

Pub Type- Guides - General (050)

Pub Type—Guides - General (UDU)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—\*Algebra. \*Calculus. \*Instructional
Materials, Mathematics, Number Concepts. Secondary Education. \*Secondary School Mathematics, \*Teaching Guides
Identifiers—\*School Mathematics Study Group
This course is intended for students who have a

This-course is intended for students who have a thorough knowledge of college preparatory mathematics including algebra, axiomatic geometry, trigonometry, and analytic geometry. It does not assume they have acquired a background of elementary functions. This teacher's guide contains back-ground information, suggested instructional procedures, and answers to student exercises. (RH)

0316 ED 143 514

Herriot, Sarah T. And Others

Calculus of Elementary Functions, Part I. Student Text. Revised Edition.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation, Washington, D.C. Pub Date-69

413p.; For related documents, see SE 022 992-994; Contains occasional light and broken

Pub Type- Books (010)

EDRS Price - MF01 PC17 Plus Postage.
Descriptors \*Algebra: \*Calculus: \*Instructional
Materials: Mathematics: Number Concepts, Secondary Education, \*Secondary School Mathematics, \*Textbooks

Identifiers \*School Mathematics Study Group This course is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. This text, Part I, contains the first five chapters of the course and two appendices. Chapters included are (1) Polynomial Functions; (2) The Derivatice of a Polynomial Function, (3) Circular Functions, (4) Derivatives of Circular Functions; and (5) Exponential and Related Functions. The appendices are (1) Functions and Their Representations, and (2) Polynomials (RH)

0317 ED 123 068

Cosler, Norma, Ed

Individuarized Math Problems in Calculus and Statistics. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem, Oregon State Dept. of Education, Salem. Career and Vocational Education Section

Pub Date - 74

Note - 18p.; For related documents, see SE 020 628-648

Available from Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207 Pub Type-- Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - \*Calculus, Individualized Instruction, \*Instructional Materials, Mathematical Applications, Mathematics Education, \*Problem Sets, Secondary Education, \*Secondary School Mathematics, Statistics, \*Vocational Education Identifiers-Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a methematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in which calculus and statistics are applied to forestry, manufacture of forest products, and electronics are presented. Problems call for computation of derivatives, integrals, means, and standard deviations. (SD)

0318 ED 116 745 Blough, David K.

A Student-Oriented Individualized Learning Program for Calculus at the Community College. Note---35p.

Pub Type- Guides - General (050) EDRS Price - MF01/PC02 Plus Postage.

Descriptors - \*Behavioral Objectives, \*Calculus, \*College Mathematics, Curriculum Design, Curriculum Guides. \*Individualized Instruction. Multimedia Instruction, Teaching Methods, Two Year Colleges

The individualized community college calculus course described here was developed to accomodate differences in student learning rates. It consists of three units: (I) limit and continuity; (II) the derivative with applic tions; and (III) the integral with applications. There are three sections in Unit I, four sections in Unit II, and five sections in Unit III. The student must pass an examination on each section before he/she may proceed to the next section. An examination for a given section may be repeated only twice, and the amount of points allotted for the examination decreases with the number of tries necessary to pass it. Although the course carries three units of credit, the student may elect to complete only one or two of the units in one semester and to finish the course during the subsequent semesters. Each student works with video-taped lectures and a textbook; regularly scheduled question-answer sessions and personal assistance are also available. The goals and behavioral objectives for each unit are detailed, and sample assignments and exams for Unit I are included. (DC)



0319

ED 097 206

Selby, Peter H. Calculus for the Rejectant Learner. Pub Date-1 Jan 72

Note-138p. Pub Type-Books (010)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors— \*Calculus, \*College Mathematics. Low Achievement, Mathematics Education, Programed Instruction, Programed Instructional Materials, Self Evaluation, Slow Learners, \*Textbooks

This introductory calculus book was especially written for the average or below average student. Its primary intent is to give an overview of basic concepts. Written in programmed instruction format, it contains reviews and self-tests. (Average/LS)

0320

Forrester, Gary B.

Techniques of Differentiation and Integration, Mathematics (Experimental): 5297.27.

Dade County Public Schools, Miami. Fla.

Pub Date-71

Note-64p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price · MF01/PC03 Plus Postage

Descriptors-Behavioral Objectives, \*Calculus. \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests

Identifiers-Quinmester Program

This guidebook on minimum course content w" designed for students who have mastered the skills and concepts of analytic geometry. It is a short course in the basic technic es of calculus recommended for the student who has need of these skills in other courses such as beginning physics, economics or statistics. The course does not intend to teach applications of the calculus to any particular area of study nor to delve to any extent into theory. Some background work in functions and notation is provided in the first week. Overall course goals are specified; a course outline, performance objectives, and suggested teaching strategies are listed. (JP)

ED 067 286

Gomez, Maria

Calculus 2, Mathematics: 5297.42. Dade County Public Schools, Miami, Fla.

Pub Date-71

Note-21p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage

Descriptors-Behavioral Objectives, \*Calculus. \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests

Identifiers-Quinmester Program

The second in a four-part sequence for the student seeking Advanced Placement, this booklet emphasizes theory and applications of the derivative and the definite integral. Overall goals and performance objectives are speficied. A course outline, teaching suggestions, and references to state-adopted texts are given for each topic covered. A sample test is included. (DT)

ED 055 820

Scharf, John And Others

Advanced Placement Mathematics Calculus, Grade 12 Curriculum Guide.

Warren City Schools, Ohio.

Pub Date-69

Note-13p.

EDRS Price - MF01/PC01 Plus Postage.

Descriptors-\*Advanced Placement Programs. Analytic Geometry. \*Calculus. \*Curriculum Guides, Grade 12. Instruction, Mathematics Education, \*Secondary School Mathematics

This document is a guide to the advanced placement program in calculus for grade 12 in the city schools in Warren, Ohio. The program covers analytic geometry, differential and integral calculus of algebraic functions, elementary transcendental functions, and applications of differentiation and integration. The philosophy and aims of the program are also discussed. (MM)



CAREER EDUCATION

0400 ED 181 201 The Uncomplicated Elementary Career Education System for the "Real" Classroom, Career Cor-ners-Math for 7-8.

Illinois State Office of Education, Springfield, Div. of Adult Vocational and Technical Education Pub Date-Feb 79

Note—114p.: For related documents see CE 023
596 and CE 023 598-599.
Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC05 Plus Postage.

Descriptors-Arithmetic, \*Career Education, \*Career Exploration, Class Activities, Decimal Fractions. Elementary Education, \*Elementary School Mathematics, Fractions, \*Fused Curriculum, Geometry, Grade 7, Grade 8, Instruc-tional Materials, Integers, Job Skills, Junior High Schools, Learning Activities, Measurement, Percontage, Worksheets

Prepared by classroom teachers for the infusion of career education into existing curriculum, this notebook contains career-related student worksheets in a number of math skills. The activities are suitable for use with a variety of ability levels and learning styles. These worksheets for grades 7 and a are divided into seven major mathematics areas: additionsubtraction, multiplication-division, decimals, fractions, percentages, integers, and geometrymeasurement. Answers are located on the backs of the worksheets. Sample worksheet titles under addition-subtraction include "Count Your Calories,"
"5300 to Spend," and "The Three M's" (mean. median, and mode); under multiplication-division:
"Counting Cups." "The High Cost of Living," and "Counting Cups." "The High Cost of Living," and "Cash Count"; under decimals: "Miles per Gallon," "Making Change," "Time Cards," and "Order Forms"; under fractions: "Farm Land" and "Cookies"; under percentages: "Your Savings Earn More" and "Commission"; under integers: "Balance or Bust" and "Being a Surveyor"; and under geometry-me-surement: "Estimating Roofs" and "Plan a County of the property of the careary of the great the great statements." Ci. c." On each worksheet are indicated the careers to which that particular activity is related. (YLB)

The Uncomplicated Elementary Career Education System for the "Real" Classroom. Career Capers

Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education. Pub Date-Feb 79

Note-103p.; For related documents see CE 023

596 and CE 023 598-600.
Pub Type— Guides - Classroom - Learner (051) —
Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC05 Plus Postage.

Descriptors-Career Awareness, \*Career Education. Career Opportunities, Class Activities, "Elementary School Mathematics, Elementary School Science, Fine Arts, Food Service, \*Fused Curriculum. Health Education. Health Services, Instructional Materials, Intermediate Grades, \*Language Arts, Learning Activities, Marine Technicians, Marketing, Mass Production, Occupational Information, Self Concept, Social Studies, Transportation, Worksheets

Prepared by classroom teachers for the infusion of career education into existing curriculum, this notebook of student and teacher activities is designed for use with the monthly Factivities for grades 4-6 (CE 023 596). Each activity corresponds to one of the nine monthly topics: "me, myself, and I"; exploring the telephone book; transportation; marketing; health services: automobile mass production: the world of work; marine sciences: and classroom cooking. Representing various ability levels and learning modes, the activities are divided into sections by the five basic curricular areas of language arts, mathematics, social studies science and health, and fine arts. (YLB)

ED 181 198 The Uncomplicated Elementary Career Education System for the "Real" Classroom, Grades K-6 Factivities.

Illinois State Office of Education, Springfield. Div. of Adult Vocational and Technical Education. Pub Date-Feb 79

Note-140p.; For related documents see CE 023 598-600.

Pub Type- Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors \*Career Awareness. \*Career Education, Career Opportuni ies, \*Class Activities, Ele-Elementary Education, School Mathematics, Elementary School Science, Fine Arts, \*Fused Curriculum, Health Education, Instructional Materials. Intermediate Grades, Interpersonal Competence, Language Arts. Learning Activities, Occupations, Primary Education. \*Self Concept, Social Studies. Worksheets Prepared by classroom teachers for the infusion of career education into existing curriculum, these teacher materials are designed to accompany the "Career Capers" for grades 4-0 (CE 023 598) Monthly stribution to the classroom teacher by an administrator is suggested for these supplemental materials. Factivities for grades K-3 emphasize career areas found in the card file box. Materials for each month include objectives, activities, language arts and math ideas for the month's topic, and student worksheets suitable for duplication. Topics are self-awareness, job awareness, community, communication, health, agriculture, animal care, construction, and transportation. Factivities for grades 4-6 emphasize career topics. For each month student worksheets are presented for the curriculum areas of the "Career Capers" notebook, including language arts, mathematics, social studies, science and health, and fine arts. Topics for each month are "me, myself, and I"; exploring the telephone book; transportation; marketing; health services; automobile mass production; the world of work; marine sciences; and classroom cooking. (YLB)

ED 181 196

Taylor, Harold D.

Ten Mathematics Projects and Career Education Infusion. Information Series No. 176.

ERIC Clearinghouse on Adult. Career, and Vocation: Education, Columbus, Ohio, Ohio State Univ., Columbus, National Center for Research in Vocational Education.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.
Pub Date—79
Contract—400-76-0122

-38p.

Available from-National Center Publications, National Center for Research in Vocational Education. The Ohio State University, 1960 Kenny Road, Columbus, OH 43210 (\$2.80)

Pub Type-Reports - Descriptive (141) - Information Analyses - ERIC Information Analysis Products (071)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors— Career Education. Elementary Secondary Education. \*Fused Curriculum, \*Mathematics Education, Program Costs, Program Evaluation

Identifiers-Career Development Program, Developmental Career Guidance Project. Fortering Team Approach Career Education, Project CAP, Project CDCC. Project CERES. Project EPIC FL. Project EPIC KY, Project Equality, Project

Ten projects which used mathematics as a major element to infuse career education into the regular school curriculum are presented in the reivew. The projects generally include programs for grades K-12. The report analyzes the ten projects from the standpoint of whether or not mathematics was involved as a subject area and, if so, to what extent. Such relevant data as the grade levels involved, the types of student population, the types of school districts, the cost of implementation, and the level of success are reported. The projects by title and location are as follows: (1) Career Development Program, Akron (Ohio) Public Schools: (2) Developmental Career Guidance Project, Pima County. Arizona; (3) Fostering a Team Approach to Career Education, Prince George's County (Maryland) Public Schools; (4) Project CAP. Boston Mountains (Greenland, Arkansas) Education
Cooperative; (5) Project CDCC, Coloma (Michigan) Community School District; (6) Project
CERES, Ceres (California) Unified School District; (7) Project EPIC. Ft. Lauderdale, Florida: (8) Project EPIC, Jefferson County (Kentucky) Public Schools: (9) Project Equality, Highline Public Schools (Seattle, Washington); (10) Project MA.TCH, Ontario-Montelair (California) School District. (CT)

0404 FD 18

Walkemban, Sara. Comp.

Careers, A Districtwide, School Based Approach, Kansas City School District, Mo-

Spons Agency Office of Education (DHLW), Washington, D C Pub Date

Note 930p, Parts of this document will not rerote 930p; rares of this declaration produce well due to small, light, or broken type (b) fixne Guides (Classroom Teacher (082)) Pub Type Guides - Classroom EDRS Price - MF06, PC38 Plus Postage.

Descriptors Behavioral Objectives, \*Career Education, Career Exploration, Curriculum Guides, English Curriculum, \*Fused Carriculum, Junior High Schools, \*Learning Activities, Mathematics Materials, Reading, Reading Materials, Science Activities, Secondary School Mathematics, Secondary School Science, Social Studies, Teaching Guides, Teaching Methods

The career education materials and concepts in this collection were developed or adapted from other sources by participants in a district wide run. high career education project piloted in Kans. City, Missouri Early portions define career educ. tion and suggest roles and functions for the col-laborative efforts of all who are involved in the teaching learning process. Sections are also devoted to career education goals and teaching points, evaluation, and teaching methods for both classroom activities and world-of-work exploration There is a small section on identifying bias and stereotyping and a unit on life planning. The major portion of the guide consists of career education infusion strategies in three categories (1) general. which covers sixty broad topics such as personal inventory, job interview, career plans, etc. (2) core subject, which offers sixty sets of materials and aids for teachers of social studies, English, science, math, and reading, and (3) other, which includes materials on individualized instruction units, vocal music, child care, etc. The infusion strategies sections include objectives, descriptions, and resource lists for each activity along with supplementary worksheets and exercises. Career education bulletin Soard ideas and sample applications are appended (PV)

0405 ED 173 657 Motivating Girls to Prepare for Math-Related Occupations. Final Report.

Torrance Unified School District, Calif Spons Agency-Office of Education (DHEW), Washington, D.C.

Bureau No. -- 19-65060-3-8-231 Pub Date- [79]

Note-82p.; Appendix E may not reproduce well due to small print

Pub Type-- Reports -Descriptive (1419 Tests: Ouestionnaires (160)

EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Career Choice. \*Career Education.
\*Careers. Counselor Attitudes. \*Females. \*Mathematics Education. Parent Participation, Parent School Relationship. Program Descriptions. Questionnaires, School Business Relationship, School Community Relationship, Secondary Education, \*Sex Stereotypes, \*Student Attitudes, Student Attitudes, dent Interests. Student Motivation, Students, Teacher Attitudes

Because of girls' relatively low motivation to pursue math studies, this project's purposes were to expand girls' career choice possibilities, to increase the quality of motivation and career guidance offered by counselors and teachers, and to involve parents of ninth-grade girls by providing specific information about the project and about math-related career opportunities. Twenty-five minthgrade girls at each of two high schools were selected to participate. Project activities included setting up a series of visitations for students with leaders in business, industry, and the professions. Successful role models visited the campus to talk with students. parents, teachers, and counselors. Also, as a part of the project, inservice meetings were held for teachers and counselors to assist them in providing better career motivation and guidance to girls. The results of the project showed (1) an increased number of girls enrolling in math; (2) an increased level of confidence in math; (3) an increased number of girls choosing a math-related career; and (4) an increased awareness and interest by teachers, counselors, and parents. (The questionnaires, surveys, and project performance management forms are appended.) (Author-LRA)



0406 ED 167 753 Mathematics Used in Occupations: An Interrelated Guide.

Minneapolis Public Schools, Minn. Dept. of Vocational Technical Education.

Spons Agency-Minnesota State Dept. of Education. St. Paul. Pupil Personnel Services Section.: Office of Education (DHEW), Washington, D.C. Note-656p.

Pub Type- Guides • Classroom - Teacher (052)

EDRS Price - MF03/PC27 Plus Postage. Descriptors—"Curriculum Development, riculum Guides, Fused Curriculum, \*Integrated Curriculum, \*Job Skills, Mathematical Applications, Mathematical Concepts. Mathematics, \*Mathematics Curriculum. \*Mathematics Bduca-tion, Secondary Education, \*Vocational Education

Intended for use by counselors and mathematics teachers, this guide brings together mathematical and occupational skills to form an interrelated curriculum. Eight occupational clusters are included as follow: (1) business and office. (2) communications, (3) construction. (4) hospitality, (5) manufacturing, (6) marketing and distribution, (7) personal service, and (8) transportation. The scope of each cluster is defined, and the major job areas within it are identified in conjunction with suggested vocational courses. A chart then shows the relation of the occupational courses to the mathematical concepts and the mathematical courses in which they are taught. Besides giving the occupational applications of the concept, the chart refers to the appendixes which contain examples of the mathematical problems encountered in the specific occupations. The mathematical skills applied include the following: areas and volumes; computer science; conics; geometry; decimals; basic arithmetic; exponents, roots, and powers; formulas and equations; graphs and tables; logarithms; logic and proof; matrices; measurement systems; parallels and perpendiculars; percents; perspectives and transformations; polynomials; calculus; products and factors: ratio and proportion; statistics and probability; trigonometry; and vector applications. (ELG)

ED 153 029

Grotenhuis, Paul Purcell, Carol Career Related Math Units for General Math 9. Roseville Area School District 623, Minn.

Spoils Agency—Office of Education (DHEW), Washington, D.C.

Pub Date-78 Note-89p

Pub Type— Guides · General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors— Career Education. Grade 9, Mathematics Curriculum, Secondary Education, \*Secondary School Mathematics, \*Simulation, Teaching Guides. \*Units of Study. \*Worksheets In this collection of four career-oriented units designed to enhance a ninth grade general math cur-riculum, the objectives listed are (1) to provide a job oriented environment in which students are encouraged to develop responsible attitudes toward employer and self and to find interest areas to use as the basis for career choices, (2) to provide incentives, both rewards and penalties, similar to those

found in real job situations, and (3) to provide lesson plans and student materials which are relative. needs-oriented, math-oriented and earcer-oriented in order to eliminate extensive teacher preparation time. Titles of the four units are the following: Careers in Sales: Construction; Driving Occupations (delivery truck driver); and Department Store Clerk. Although the bulk of materials in each unit are examples of student worksheets (e.g., arithmetic problems and record forms that would be encountered in the occupation), instructions are given for using the materials within the context of a simulated work setting in which the teacher functions as employer or "boss" and the students as employees. It is suggested that the units may be used for varying periods of time and different class situations. For example, they can be used as "rewards" for individual students who complete the required work. for groups of students who would benefit from course enrichment, or as a general class assignment. (VB)

0408

Michalicek, Richard And Others Career Related Math Units. Teacher's Edition. Robbinsdale Independent School District 281. Minn.

ED 120 349

Spons Agency - Minnesota State Dept. of Educa-tion, St. Paul. Div. of Vocational and Technical Education.

Pub Date-Nov 71

Note-448p.; For related document, see CE 005

Pub Type- Guides - General (050)
EDRS Price - MF01/PC18 Plus Postag .
Descriptors---\*Career Education, Caree Exploration, Career Opportunities, Home Management, 
\*Individualized Instruction, \*Instructional \*Individualized Instruction, \*Instructional Materials, Job Skills, Learning Activities, Mathematics Curriculum, Mathematics Education, Mathematics Instruction, "Mathematics Materials. Noncollege Bound Students. Occupational Information, Secondary Education. \*Secondary School Mathematics, Simulation, Units of Study.

Individualized units of math instruction related to each of several occupations in 14 occupational clusters comprise the high school career-related math euroculum. An introductory booklet provides students with general information on the clusters, when students have selected an occupation that in-terests them, they take the packet of instructional materials for that occupation, complete the pretest. and, in conference with the teacher, decide whether to continue the unit or to concentrate first on any math skills in which the pretest has revealed a deficiency. Each instructional unit relates information about a career and about home management in a personalized narrative, which contains problems requiring specific math skills. The materials include facsimiles of forms used by persons employed in the occupation: the authors recommend supplementing these with actual source materials. Contained in the document are the students' introductory booklet, the kits of instructional materials, pretests and posttests, answer keys, a student record sheet, and recommendations for teachers on procedures. The materials were prepared by a team of Minnesota math teachers and a work experience coordinator. after their students identified the jobs in which they were most inte-ested. The units present fictional persons pursuing occupations which follow traditional sex-role expectations. (Author AJ)

0400

Robinson, Mary Career Education Math; Units for Career Explora-tion in Sixth, Seventh or Eighth Grade.

Oklahoma State Dept. of Vocational and Technical Education, Stillwater, Curriculum and Instructional Materials Center.

Spons Agency—Office of Education (DHEW), Washington, D.C.

Pub Date-74 

Available from—Oklahoma State Dept. of Vocational and Technical Education. 1515 West Sixth, Stillwater. Oklahoma 74074 (53.25)
Pub Type— Guides - General (650)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—\*Career Education. \*Career Exploration. Computer Science Education.

tion. Computer Science Education. Course Content. Educational Objectives. Hospital Personnel,
\*Instructional Materials, Integrated Curriculum. Intermediate Grades, Junior High Schools, Learning Activities, \*Mathematics Education, Mathematics Materials, Metric System, Occupational Clusters, Statistics, \*Teaching Guides, Transpor-

tation. Unit Plan

The guide, designed for sixth, seventh, or eighth grade teachers and students, presents five mathematics instructional units for career exploration related to the occupational clusters transportation. communication, manufacturing, health, and business and office occupations. The units deal specifically with: shippers of household goods, the computer, metric measure, and hospital workers. Each unit is based on behavioral objectives which are stated as terminal objectives, dealing with the subject matter to be covered, and as specific objectives, dealing with the student performance necessary to reach the terminal objective. The other components of each unit are:list of suggested activities for instructor and student, reference list, information sheets outlining the content of the unit and a brief description of jobs related to the unit, assignment sheets pro specific written activities, job sheets

providing creative projects, answers to assignment sheets, a unit test, and answers to the test Some units also contain transparency masters. Instrucions for using the guide and forms and guidelines for field trips, interviews, and resource people are included (MS)

ED 117 574

Nuschler, Alexandra And Others, Business Mathematics, Mathematics Curriculum Guide (Carcer Oriented).

Report No. Bull-1279, VT-102-470
Pub Date. May 74
Note - 42p., For related documents, see CF (010

182-290

o Type Guides - General (050)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Behavioral Objectives, \*Business Education, \*Career Education, \*Curriculum

Guides, Learning Activities, "Mathematical Applications, Mathematics Curriculum, "Secondary Education

ldentifiers - Louisiana

The curriculum guide correlates concepts in business mathematics with career-oriented concepts and activities. The curriculum outline format gives the concepts to be taught, matched with related carecr-oriented performance objectives, concepts, and suggested instructional activities in facing page layouts. The outline is divided into the major sections of fundamental arithmetic, consumer mathematics, retailing, mathematics of finance and investment, taxes and insurance, and business graphs and records. (NJ)

0411 ED 117 573

Nuschler, Alexandra And Others Geometry. Mathematics Curriculum Guide (Career Oriented)

Louisiana State Dept. of Education, Baton Rouge

Pub Date -- May 74
Note -- S5p., For related documents, see CE 006

282-291

Pub Type — Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors — Behavioral Objectives, \*Career Education, \*Curriculum Guides, \*Geometry, Learn-Activities, Mathematical Applications. Mathematics Curriculum, \*Secondary Education Identifiers - Louisiana

The curriculum guide correlates concepts in geometry with career-oriented concepts and activities. The curriculum outline format gives the conto be taught, matched with related career-oriented performance objectives, concepts, and suggested instructional activities in facing page layouts. The suggested curriculum outline is compatible with all books on the approved textbook list for Louisiana. The outline is divided into the major sections of elements of geometry, introduction to proof, lines and planes, congruence, polygons and polygonal regions, circles, similarity, trigonometry, plane coordinate geometry, and solid figures, (NJ)

ED 117 572

Ohmer, Merlin M. And Others

Algebra II. Mathematics Curriculum Guide (Career Oriented).

ouisiana State Dept. of Education, Baton Rouge Report No.--Bull-1283; VT 102-468 Pub Date - May 74

Note = 59p.; For related documents, see CE 006 282-291

Pub Type Guides - General (050)

Descriptors— \*Algebra. Behavioral Objectives.

\*Carcer Education. \*Curriculum Guides. Learning Activities, Mathematical Applications, Mathematics Curriculum, \*Secondary Education

Identifiers Louisiana

The curriculum guide for Albegra 2 correlates algebraic concepts with career-oriented concepts and activities. The curriculum outline formar gives the concepts to be taught, matched with related careeroriented performance objectives, concepts, and suggested instructional activities in facing rage layouts. The suggested curriculum outline is compatible with all books on the approved textbook lists for Louisiana. The outline is divided into the following major headings: review of sets and the real number system; equations and inequalities; complex number system, relations, functions, and come sections, exponential and logarithmic functions; sequence, series, and the binomial theorem, permutations, combinations, and probability; and introductory



ingonometry. (NJ)

ED 117 571

Nuschler, Alexandra And Others General mathematics: Part 2. Mathematics Curriculum Guide (Career Oriented).

Louisiana State Dept of Education, Baton Rouge Report No.--Bull-1281; VT-102-467 Pub Date-- May 74

Note-91p.; For related documents, see CE 006 282-291

Pub Type-- Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors - Algebra, Arithmetic, Behavioral Ob-Descriptors Algebra, Arithmetic, Behavioral Objectives, "Career Education, "Continuous Progress Plan, "Curriculum Guides, Geometry, Learning Activities, Mathematical Applications, Mathematics, Mathematics Curriculum, Relevance (Education), "Secondary Education Identifiers---Louisiana

The curriculum guide for secondary level, career-oriented General Mathematics Part 2, correlates performance objectives in basic mathematics with career-oriented concepts and activities. The material is designed to lead the student in a systematic development that provides for continuous progress. The guide is in outline format, providing a curriculum outline, performance objectives, and related (career-oriented) concepts, objectives, and learning activities. The guide encompasses the topic headings of refresher arithmetic and algebra; informal geometry; mathematics related to shop, construction, nursing, homemaking, sports, and travel; and mathematics for electricians. (NJ)

0414

ED 117 570

Nuschler. Alexandra And Others General Mathematics; Part 1. Mathematics Cur-

riculum Guide (Career Oriented).
Louisiana State Dept. of Education, Baton Rouge. Report No.—Bull-1270; VT-102-466 Pub Date—May 74

Note—63p.; For related documents, see CE 006 282-291; The table of contents is incomplete

Pub Type— Guides - General (050)
EDFS Price - MF01/PC03 Plus Postage.
Descriptors—Arithmetic. Behavioral Objectives. \*\*Carrer Education, Continuous Progress Plan,

\*\*Curriculum Guides, Geometry, Learning Activities, \*\*Mathematics, Mathematics Curriculum,

Measurement, \*\*Secondary Education, Statistics\*\*

Identifiers-Louisiana

The curriculum guide for secondary level, career-oriented General Mathematics Part 1, correlates performance objectives in basic mathematics with career-oriented concepts and activities. The material is designed to lead the student in a systematic development that provides for continuous progress. The guide is in outline format, providing a curriculum outline, performance objectives, and related (career-oriented) concepts, objectives, and learning activities. The guide encompasses the main sopic areas of developmental arithmetic, introduction to algebra, geometry, measurement, introduc-tion to statistics, and enrichment topics. (NJ)

Atkinson, Marilyn And Others Career Education: Learning with a Purpose. Sendary Guide-Vol. 5. Mathematics and Career Clusters, Mathematics Related Activity Suggestions, Field Trip Sites and Guest Speakers.

State Fair Community Coll., Sedalia, Mo.

Spons Agency—Office of Education (DHEW),
Weshington

Washington, D.C. Note—168p.: For Volumes 1-6, see CE 006 075-080; For Junior High School Guides, see CE 006 362-365

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors— \*Carrer Education. Curriculum Development. \*Curriculum Guides. Educational Objectives. Integrated Curriculum. \*Mathematics \*\*Convertigal Clusters. Parameter Materials.\*\* \*Occupational Clusters. Resource Materials. Secondary Education, Teaching Methods, Unit Plan

The guide offers a compilation of teacher-developed career education materials which may be integrated with secondary level curriculum in mathematics. Suggested activities and ideas present the following units based on career clusters as they relate to mathematics: construction, communications and media, hospitality and recreation, public service, marine science, health, manufacturing, transportation, and agni-business and natural resources.

ry suggestions for other math-related units are en including several "silent lectures" em-

phasizing logical problem solving and units on consumer economics, metrics, computer science, statistics, and other mathematical applications. Objectives, teaching procedure, and related resources and materials are presented for each unit. A 12-page list of suggested local field trip sites and guest speakers is included. (EC)

ED 146 933 Mahafjey, Michael L. McKillip, William D.

Career Oriented Mathematics, Student's Manual. [Includes Scale; Apprenticeship; Learning to be Cement Mason; Textiles: Being Self-Employed: Harvesting and Sale of Pulpwood; and Lumber Yard Employee.]

Berrien County Schools, Nashville, Ga

pons Agency Bureau of School Systems (DHEW OF), Washington, D.C., Georgia State Dept. of Education, Atlanta

Pub Date [75] Note—116p. For the accompanying teacher's manual see SE 019 993. Other documents in this series include SE 019 991 and 992

Available from Berrien County Board of Educa-tion, Title III. P.O. Box 473, Nashville, Georgia 31630 (1-4 copies, 54 00 ca., 549, 53 75 ca., 10-30. \$3.50 ea., 31 or mire, \$3.25 ea., payment must accompany orders; Teacher Manual included with order of 30 Student Manuals)

Pub Type-- Books (010) EDRS Price · MF01/PC05 Plus Postage.

Descriptors -- Basic Skills, Career Education, Curriculum, Education, Geometry, Instruction, \*Instructional Materials, \*Mathematical Applications. Mathematics, Measurement, Motivation. Secondary Education, \*Secondary School Math-

ematics, Textbooks Identifiers— \*Career Oriented Mathematics, Ele-mentary Secondary Education Act Title III, Uni-

versity of Georgia

This volume includes student manuals for five units in the Career Oriented Mathematics Program, which was developed to improve mathematical abilities and attitudes of secondary students by presenting the material in a job-relevant context. The units are titled: (1) Scale, (2) Apprendiceship: Learning to be a Cement Mason. (3) Textiles. (4) Being Self-Employed: Harvesting and Sale of Pulpwood. and (5, Lumber Yard Employee. The manuals are consumable, most pages containing problems and accompanying diagrams or necessary data. The mathematical content of the units is basic computation and elementary geometry. (SD)

ED 116 932 Mchaffey, Michael L. McKillip, William D.

Circer Oriented Mathematics, Teacher's Manual. [Includes Scale; Apprenticeship: Learning to be a Cement Mason; Textiles; Being Self-Employed: Harvesting and Sale of Pulpwood; and Lumber Yard Employee.]

Berrien County Schools, Nashville, Ga.

oons Agency—Bureau of School Systems (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education. Atlanta.

Pub Date-[75] Note—136p.; For the accompanying student manual, see SE 019 994. Other documents in this series include SE 019 991 and 992. Occasional

marginal legibility Available from-Berrien County Board of Education, Title III. P.O. Box 173, Nashville, Georgia 31639 (\$5.75, payment must accompany orders)

Pub Type— Guides - General (050) EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Basic Skills. \*Career Education. Curriculum, Geometry. Instruction, \*Instructional Materials. \*Mathematical Applications, Mathematics Education, Measurement, Motivation, Secondary Education, Secondary School Mathematics, \*Teaching Guides, Textbooks

Identifiers-Career Oriented Mathematics, Elementary Secondary Education Act Title III. University of Georgia

This manual is designed for teachers using units in the Career Oriented Mathematics Program titled: (1) Scale. (2) Apprenticeship: Learning to be a Cement Mason, (3) Textiles, (4) Being Self-Employed: Harvesting and Sale of Pulpwood, and (5) Lumber Yard Employee. Lesson plans, masters for dittos and transparencies, and problem solutions are provided. (SD)

FD 116 931 Mahattev Michael L. McKillip William D Career Oriented Mathematics, Student's Manual. [Includes Owning an Automobile and Driving as a Career; Retail Sales; Measurement; and Area-

Berrien County Schools, Nashville, Ga-

Sons Agency Bureau of School Systems (DHEW OE), Washington D.C. Georgia State Dept of Education, Atlanta

Pub Date [75] Note 92p: For the accompanying teacher's manual, see SE 019 991. Other documents in this series include SE 019 993 and 994

Available from Betrien County Board of Educa-tion, Fitle III, P.O. Box 473. Nashville: Georgia 31639 (1.4) spies, \$4.00 ca., \$9, \$3.75 ca., 105 ci., \$3.50 ca., 31 or more, \$3.25 ca., payment must accompany orders. Teacher Manual included with order of 30 Student Manuals)

Pub Type Books (010)

Descriptors \*Basic Nkills \*Career Education, Curriculum, Geometry, Instruction, \*Instructional Materials, "Mathematical Applications, Mathematics Education, Motivation, Number Concepts. Secondary Education, \*Secondary School Mathematics, Textbooks Identifiers \*Career Oriented Mathematics, Ele-

mentary Secondary Education Act Title III Uni-

versity of Georgia

This volume includes student manuar, for four units in the Career Oriented Mathematics Program, which was developed to improve computational abilities and attitudes of secondary students by presenting the material in a job-relevant context. The units are titled (1) Owning an Automobile and Driving as a Career, (2) Retail Sales, (3) Measurement, and (4) Area-Perimeter. The manuals are consumable, primarily consisting of worksheets which provide both mathematical problems and information needed for their solution (tax tables, maps, inventory records, etc.) The unit on area and perimeter presents problem: using 'attice point dis-plays. Practice examinations are included (SD)

0419

Mahaffey, Michael L. McKillip, Wullam D.
Career Oriented Mathematics, Teacher's Manual.
[Includes Mastering Computational Skill: A Use-Based Program; Owning an Automobile and Driving as a Career; Retail Sales; Measurement; and Area-Perimeter.]

Bernen County Schools, Nashville, Ga.

Spons Agency Bureau of School Systems (DHEW OE, Washington, D.C., Georgia State Dept. of Education, Atlanta.

Pub Date - [75]
Note - 173p.; For the accompanying student manual, see SE 019 992. Other documents in this series include SE 019 993 and 994

Available from Bernen County Board of Educa-tion, Title III. P.O. Box 473, Nashville, Georgia tion, little Hi. P.O. Box 4/3, Nashville, Georgia 31639 (55.75, payment must accompany orders) Pub Type—Guides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors—\*Basic Skills. \*Career Education, Curriculum, Instruction. \*Instructional Materials.

\*Mathematical Applications, Mathematics Education, Motivation, Sumber Concepts, Secondary Education. Secondary School Mathematics, 
\*Teaching Guides. Textbooks

Identifiers—\*Career Oriented Mathematics, Elementary Secondary Education Act Title III. University of Country

versity of Georgia

This manual is designed for teachers using the Career Oriented Mathematics units on owning an automobile and driving as a career, retail sales. measurement, and area-perimeter. The volume begins with a discussion of the philosophy and scheduling of the program which is designed to improve students' attitudes and ability in computation by approaching the material in a career-relevant context. Lesson plans and ditto masters for diagnostic tests and worksheets are provided. (SD)

ED 112 079 BO-CEC Math Resource Guide: Grades 7-9. Colorado State Univ., Ft. Collins, Dept. of Voca-

tional Education. Spons Agency -- Bureau of Adult, Vocational, and Technical Education (DHEW OE), Washington,

D.C Fub Date [75] Contract OEC-0-73-5230

Note 296p.; Some illustrations may not reproduce



due to the amaliness of the 'ype; For related documents, see CE 004 842-847

Pub Type— Guides - General (050)

EDRS Price - MF01/PC12 Plus Postage.

Descriptors— Business Education. \*Carreer Education.

tion, Career Exploration. Class Activities, Curriculum Enrichment, \*Curriculum Guides, Grade 7, Grade 8, Grade 9, Instructional Materials. Learning Activities, Mathematics. Mathematics Instruction, Mathematics Materials, Office Occupations Education, Secondary Education, Secondary School Mathematics, Simulation, Teaching Guides, Unit Plan

Identifiers—Business and Office Career Education Curriculum, Project BO CEC

The purpose of the units in the guide is to supplement, enrich, and reinforce the usual classroom instruction in seventh through ninth grade mathematics, and at the same time, introduce career education. The 14 resource units are not designed to be the primary teaching device for the math topics with which they deal. Each unit emphasizes an occupational setting (such as communications, industry, public services organizations, transportation industry, etc.) and a specific occupation within that setting. The purpose is to give students a chance to explore various business and office occupations while gaining insight into how and why a knowledge of mathematics is important in everyday work life. The resource units may be adapted to fit an individual school's special objectives; the units have been designed so that activities may be added or deleted. The first one or two pages of each unit gives the purpose, briefly describes the major activities, and suggests procedures. A general information sheet provides teachers with background information about the occupation described in the unit. Teacher's keys provide answers to a simulation activity and provide suggestions for related discussions. The student materials for the major activities are located at the end of each unit. (Author/AJ)

0421

ED 110 696

Dickson, Helen K., Comp.
You and the Work World of Math: Packets of
Mathematics with Career Orientation.

South Dakota Career Education Project. Waternwo!

Note-8p.; Not available in hard copy due to marginal reproducibility of original document Pub Type— Reports - Research (143) EDRS Price - MP01 Plus Postage. PC Not Availa-

ble from EDRS.

Descriptors-Elementary Secondary Education, \*Instructional Materials, Learning Activities.
\*Mathematical Applications, Mathematical Enrichment, \*Mathematics, \*Mathematics Materials als, \*Relevance (Education)

The collection of projects and exercises is designed to acquaint students with some practical applications of mathematics. The exercises are of varying length, and are oriented about the following topics and projects: home landscaping; architectural home planning; construction; home food production: personal income; banking; spending (budgeting, catalo<sub>b</sub> shopping, home furnishing, comparative home shopping, and quantity purchasing): vacation planning; and opinion polling. (PR)

0422 ED 107 896 [Secondary Career Education Activities: Math-

Radford City Schools, Va.

Spons Agency—Office of Education (DHEW),
Washington, D.C.

Bureau No.—V361010L

Grant—OEG-0-73-2990 Note—31p., For related documents, see CE 003 996-CE 004 006 and CE 004 008-010

Available from-Kuhn Barnett Elementary School, 4th and Pendleton Streets, Radford, Virginia. 24141 (K-3 (39 units) \$5.00; 4-7 (42 units) \$5.00; Special Education (18 units) \$5.00; 8-12 (107 units) \$10.00)

Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors— Career Education. Curriculum Guides, Integrated Curriculum, Mathematical Applications, \*Mathematics Curriculum, Occupations, Resource Materials, \*Secondary Education, \*Secondary School Curriculum, Secondary

School Mathematics. Units of Study
Identifiers—Radford Career Education Program
The guide is one of a series developed in a pilot
project to integrate career education concepts with matter in secondary grades. The units are

designed to reveal career orientation aspects of traditional topics within five inajor subject areas. English, social's judies, mathematics, science, and health and physical education. The lesson plans are presented in Enef outline form, but activities range from those of short duration to several weeks. All provide broad objectives, performance objectives. lesson procedures, and materials and resources in all media. The units in mathematics directed to grades 8-12 cover machinist work, transportation, buying and selling stocks, sports statistics, sales, estimation. contracting, travel, percentage, rational numbers, home maintenance and purchase, checking accounts, linear measure, computers, surveying, mathematician careers, space, architecture, psychology, vacations, pythgorean theorem, and drafting. (MDW)

0423 ED 107 825

Career Activities in Mathematics: Grades 7, 8, 9. Boise City Independent School District, Idaho.

Spons Agency-Idaho State Dept. of Education. Boise.

Pub Date-74

Note-153p.; For related documents, see CE 003

Pub Type- Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors-Career Awareness, \*Carcer Education, \*Career Exploration, Careers, Class Activities. Curriculum Enrichment, \*Curriculum Guides, Educational Objectives, Employment, Grade 7, Grade 8, Grade 9, Junior High Schools, Mathematical Applications. Mathematical Concepts, \*Mathematics. \*Occupational Clusters, Occupational Information, Resource Materials

The career activities guide in mathematics, part of an Idaho State Department of Vocational Education career exploration series for grades 7, 8, and 9, is designed as supplementary material to enrich the regular curriculum. Any one activity in the guide might be used without involving any other activities. The cross-referenced index indicates grades, subject, career cluster, occupation, and, in most instances, subject concept. Performance objectives. activity situation and steps (mainly situational mathematical problems), materials, and special recommendations are outlined for the various job titles. Career clusters included are: home economics and consumer; industrial arts; arts, crafts, and humanities: business occupations: communications and media, hospitality and recreation; environmental control; personal service; manufacturing; transportation; health occupations; public service; agriculture and natural resources; marine science: marketing and distrib: construction; and miscellaneous activities. Suct concepts involve various aspects of science such as fractions, ratios, decimals, equivalent values, ruler measurements, proportions, metric system, percentages, chart reading, scientific notation, exponents, geometry, cost formulas, graph relations, and weights and heights.

0424

ED 107 768

Jensen, Daniel

Geometry Career Unit: Junior High.

White Bear Lake Independent School District 624, Minn

Pub Date-[73]

Note—23p: For related documents, see CE 003 833-42 and CE 003 844-9

Pub Type- Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage. Descriptors-Career Development, \*Career Ecucation, \*Geometry, \*Instructional Materials, Justion High Schools, \*Mathematical Applications. Mathematical Enrichment, Mathematics Materi-

als. Relevance (Education). Teacher Developed Materials

The guide, the product of an exemplary career education program for junior high school students. was developed to show how geometry can be applied to real-life career-oriented areas and to bring a practical approach to the teaching of geometry. It is designed to show how some of the theorems or postulates in geometry are used in different careers. The guide lists each of 44 postulates or theorems with an appropriate figure, explains it, and presents its possible applications to the world of work. (Au04.25

LD 407 765

Mack, William And Others

Mathematics Career Unit for Junior High School. White Bear Lake Independent School District 624, Minn

Pub Date [73] Note 27p, For related documents, see CF 003 833-9 and CE 003 841-9

Pub Type Guides - General (050) EDRS Price - MF01 PC02 Plus Postage, Descriptors Career Awareness, Career Development. \*Career Education, Instructional Materials, Junior High Schools, \*Learning Activities, Math-\*Mathematics Entrehment, Mathematics Education, \*Mathematics Instruction, \*Mathematics Materials, \*Occupational Information, Occupations, Relevance (Education), Skill Development Part of an exemplary program for junior high

school students, the material in the guide was developed as a supplement to existing mathematics programs. The various math skills are divided into six groups whole numbers, decimals, fractions, percent, ratio-proportions, and area volume. For each of the groups, three to seven different career packets are provided, each of which contains tob descriptions and the math skills needed for each job. Sainple career packets include consumer, carpenter electrician, auto mechanic, auto salesman, and sportswriter (JR)

0426

ED 105 170

Soper, Joan, Ed. Career Education-An Idea Book for Mathematics Teachers.

Pub Date - [72]
Note: 33p.; For related documents, see CF 603
437-441

Pub Type -- Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Career Awareness. Career Development. \*Career Education. Career Exploration, elementary Secondary Education. \*Guides. \*Instructional Materials, Integrated Activities, \*Integrated Act grated Curriculum, Interdisciplinary Approach. Learning Activities, \*Mathematics, Mathematics Curriculum, Mathematics Instruction, Occupational Clusters, Teacher Developed Materials Identifiers -- Rhode Island

The book contains a series of career-oriented ideas for mathematics teachers, contributed by teachers in the East Providence Career Education Project. The ideas are the basis of the interdisciplinary contracting system for grades 7-12 in three pilot schools. They are classified by occupational clusters, which the teachers can use to incorporate their academic skill development with career ex-ploration and development. The ideas are meant to be adapted to any grade level and incorporated into the teacher's particular teaching style, classroom organization, and student needs. The occupational clusters integrated into the mathematics curriculum are: agribusiness and natural resources, business and office, communications and media, construction, consumer and homemaking, environment, fine arts and humanities, health, hospitality and recreation, manufacturing, marine science, marketing and distribution, personal service, public service, and transportation. Each idea is numbered separately and is presented in a one- or two-sentence format. (BP)

0427 Secondary Math Activities of the North Dakota Exemplary Project in Career Education, Grades

North Dakota State Board for Vocational Education, Bismarck, Spons Agency Bureau

: Adult, Vocational, and Technical Education (DHEW Oh), Washington, D (

Bureau No. - 0-361-0047 Pub Date - 30 Jun 73 Grant - OEG-0-70-4752(261)

Note - 164p.; For other secondary level guides from this project, see CE 003 324-5, and CE 063 327-8. for elementary level guides, see CE 002 407-10.
CE 002 393-4, and CE 003 322-3
Pub Type Cuides - General (050)
EDRS Price - MF01/PC07 Plus Postage.
Descriptors - Behavioral Objectives. Career

Descriptors - Behavioral Objectives. Career Awareness. Career Development. \*\*Career Education, \*\*Curriculum Guides. \*\*Integrated Curriculum, Junior High Schoots, \*\*Learning Activities. \*\*Mathematics, Resource Materials. Resource Units, Secondary Education

The secondary math activities materials deve-

loped by the North Dakote Exemplary Project represent information that will be helpful to teachers in achieving the goals of a career education program. The guide provides a flexible framework to provide caperiences that will support the learning principles needed to attain the required knowledge, attitudes, and skills essential to productive living integrated into the existing curriculum. A brief explanation is offered of career education-its definition, philosophy for the secondary level, specific secondary objectives, aummary of career education objectives, and the need for career education. The needs of the students, involvement in the world of work, and clessroom facilities should set the stage for the selection of resource units to be used. Within the mathematics area activities are organized by the career education elements of: self awareness, career awareness, appreciations and attitudes, economic awareness, and educational awareness. Each broad objective includes specific behavioral objectives, a suggested subject area and grade level, learning activities, suggested teaching techniques, resource materials and worksheets. Supplemental materials are appended. (Author/BP)

0428 ED 096 477 Math. [A Sample Guide for Integrating Career Education into Math).

Pottawattamic County School System, ouncil Bluffs, lowa

Pub Date-[72] Note--- 30p.

(BP)

- Guides - General (050)

EDRS Price - MP01/PC02 Plar Postage.
Descriptors—\*Career Education, Enrichment Activities, Instructional Materials, Mathematics, Mathematics Materials, Resource Materials, \*Teacher Developed Materials

This set of mathematics instructional materials are examples of how a teacher can integrate career education into math. Six topics related to the career education concept are featured. "Sample Math Problems" was written for a class studying about jobs in a bakery, and the problems are ones that would be encountered in a bakery. "Careers as Related to Math" is a sample of how career education can be effectively correlated and integrated into math texts (Elementary School Mathematics published by Addison-Wesley) for grades 4, 5, and 6.
Occupations requiring high school or college education and/or on-the-job training are listed, and the concepts required for most math-related occupa-tions are itemized. Other materials include an outline of concepts and enrichment materials to be used along with the Addison-Wesley textbook. "Using Math in a Department Store" is a sample lesson is a sample lesson where the students not only learn basic questions with fractions, but they also learn that these skills are necessary to work in a department store. "Bricklayers Use Multiplication" eites four multiplication work problems. "A "Lube" Man Uses Math" gives three job related math problems. "Do You Really Need to Shudy Math?" is a brief project summary.

0429 ED 096 475

Magram, Elyie And Others Correlated Carriculum Program: An Experimental Program, Mathematics Level 1. Project No.

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development. Pub Date-May 70

Note-41p.; For related document, see CE 002 088: Portions of the document may be marginally re-

producible

Pub Type--- Guides - General (050) FDRS Price - MF01/PC02 Plus Posta

Descriptors Career Education. Curriculum Guides, Educational Media, Integrated Activities, Interdisciplinary Approach. Job Skills, Learning Activities, Mathematical Applications, Mathematics, Secondary Education, Secondary School Mathematics, Simulation, Teaching School Mathematics, Simula Guides, Vocational Education

Identifiers—Correlated Curriculum Program The Correlated Curriculum Program is a 4-year career-oriented program designed to provide a more effective educational program for the general course student, with an interdisciplinary approach to teaching. Teachers are organized into teams to plan for correlated lessons. Correlating career subjects with academic subjects serves to reinforce student learning and to improve achievement in all subjects. The document is a teacher's manual designed to assist the mathematics teacher in implementing the

Mathematics Correlated with Business Careers curricula. Specific teacher and student activities are suggested and illustrated for each topic, but extensive lesson and unit plans have not been developed Mathematical skills are developed in various simulated job situations related to six occupational areas. working in a store, in an office, in a warehouse, in a transporting company, in a service industry, and for the government. Additional, noncorrelated levsons are suggested to round out the students' mathematics education. Resources and references are listed in the appendix (Author-AJ)

ED 085 548

Pierro, Mike And Others

Geometry: Career Related Units. Teacher's Edi-

Minnesota State Dept. of Education, St. Paul. Div. of Vocational and Technical Education Robbinsdele Independent School District 281, Minn.

Pab Date - Jan 73 Note -- 270p.

EDRS Price - MF01/PC11 Plus Postage.

Descriptors--- \*Career Education. \*Curriculum Enrichment, \*Geometry, High Schools, \*High School Students. Resource Units. \*Unit Plan

Using six geometry units as resource units, the document explores 22 math-related careers. The authors intend the document to provide senior high school students with career orientation and exploration experiences while they learn geometry skills. The units are to be considered as a part of a geometry course, not a course by themselves. The six geometry units (right triangles and the Pythogorean theorem, polygons and their areas, parallel lines, standard constructions, volume, and circle relationships) may either be studied first or used as resource units as the student works in any of the career units: printing and the graplic arts, heavy equipment operator, fashion and apparel design, navigation, painting and paperhanging, landscape technology, carpenter, architecture and drafting, optical technician, sheet metal, engineering, machinist, cement workers, forestry, electrician, general contractor, home planning, cabinetmaking, plumbing and pipe fitting, surveyor, outdoor advertise and space. The teacher's edition contains an air y. (AG) y. (AG)

ED 079 108

McHale, Thomas J. Witzke. Paul T.

A System of Instruction for Career Mathematics. Pub Date-Dec 72

Note-19p.; Paper presented at the annual convention of the American Vocational Association. Chicago, Illinois, December 2-5, 1972

EDRS Price - MF01/PC01 Plus Postage.

Descriptors--- \*Career Planning. \*Curriculum. Curriculum Development, "Higher Education, Individualized Instruction. Mathematical Applications, \*Mathematics Education, Program Descriptions, Secondary School Mathematics, Technical Education, \*Technical Mathematics

A system of instruction for technical mathematics which utilizes programmed materials, continual diagnostic assessment, and tutoring is described. The system was developed at the Milwaukee Area Technical College. The first section of this paper states the philosophy of the project, lists the programmed texts used, enumerates special features of the project, and describes the use of the system of instruction. The second section analyzes the system of instruction, giving details on how the system works, characteristics of students enrolled in the courses, course content, student evaluation, teacher role, and typical results of the program. Section three discusses the use of the system in secondary schools, including development of a two-year technical mathematics sequence for grades 11 and 12. The final section looks into future directions for the program. (DT)



# CONSUMER EDUCATION

0500 ED 180 853 Consumer Education Organization and Implementation.

Philadelphia School District, Pa Office of Curriculum and Instruction

Pub Date - 79 Note --- 96p.

Available from -School District of Philadelphia, 13th and Spring Garden Streets, Philadelphia, PA 19123 (\$3.00)

Pub Type- Guides - Classroom - Teacher (052) Reference Materials - Bibliographies (131) EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors—Audiotape Recordings, Audiovisual Aids, Bibliographies, Consumer Economics, \*Consumer Education, Curriculum Development. \*Educational Media. Elementary Secondary Education. Films. Games. Guides. Income. Instructional Materials, Instructional Programs. Laws, Money Management, Nutrition, Periodicals, Purchasing, \*Resource Centers, Resource Materials. School Districts, Supplementary Reading Materials. Teacher Education

Identifiers-Pennsylvania (Philadelphia) This guide lists programs and instructional mater:-

als developed by or available through the consumer education division of the Philadelphia School District. Opening sections outline skills to be developed through consumer education, specific services of the consumer education division, and various workshops and inservice programs for teachers and parents of elementary and secondary students. Three sections identify scope and sequence, concepts, and specific materials for initiating consumer education programs at three levels: kindergarten through grade six, grades seven and eight, and grades nine through 12. Another section lists 14 curriculum guides and unit guides which are available from the division's Consumer Affairs Education Resource Center. Some of the guides are in Spanish. The largest section identifies 101 textbooks, supplementary printed materials, workbooks, and spirit masters which are available through the Center. Contents of the guides include consumer mathematics, general and consumer economics, money management, employment and income, law and consumer responsibility, nutrition, and shopping skills. The guides are intended for all grade levels. Each entry includes information on author or publisher, title, recommended grade level, subject area, order number and price, and a brief description of content. Concluding sections briefly describe 123 multimedia kits, eight cassettes, 11 filmstrips, 35 games, 19 transparencies, 64 videotapes, 75 16mm films, and 10 periodicals which can be borrowed from the Center. (AV)

0501 Consumer's Choice: An Interdisciplinary Approach to Consumer Education. Developed for Grades K-4.

Allegheny Intermediate Unit, Pittsburgh, Pa Spons Agency-Office of Education (DHEW), Washington, D.C. Pub Date-79

Note-For related documents, see ED 164 388 and 389

Available from—Project ICE, Allegheny Intermediate Unit, Suite 1300, Two Allegheny Center, Pittsburgh, Pennsylvania 15202 (free, limited sup-

Pub Type- Guides - Classroom - Teacher (052)

Pub Type— Guides - Classroom - Feacher (US2) EDRS Price - MF01/PC12 Plas Postage. Descriptors—Civil Rights, "Concept Teaching, Consumer Economics, "Consumer Education, "Daily Living Skills, "Educational Strategies, Elementary Education, Integrated Activities, \*Interdisciplinary Approach, Learning Activi Purchasing, Social Studies, Teaching Guides

This manual suggests teaching strategies for integrating consumer education into art, language arts, mathematics, science/health, and social studies in grades K-4. The guide lists consumer education competencies, interdisciplinary structures for consumer education, and provides a chart which relates competencies to page numbers in the guide. Competencies are related to the concepts of the marketplace; legal rights, redress, and consumer law; major purchases of products and services; and special problems such as advertising and product safety. Sections for individual subject areas include the concept, competency, and sub-competency to be covered for each activity, suggested classroom activities, resources, follow-up activities, and perform-

ance indicators. In art, students draw a labor saving device, make collages of luxuries they desire and then compute the price, and design packages for new products. Some activities in language arts include interviewing people about their purchasing goals, writing letters of complaint, and consulting a telephone directory to locate agencies which benefit consumers. Mathematics students examine differences between bartering and using money, play monopoly, and prepare a shopping budget. Activities in science and health include presentations by public health officials, discussions of drugs, cigarettes, and alcohol, and examination of advertisements for unnecessary products. Social studies classes examine differences between goods and services, fill out a checklist of basic needs, and comparison shop through newspaper advertisements Lists of relevant books, film, teaching kits, games, and resources of free material and information are included. (KC)

0502 ED 174 858 Consumer's Choice. A Manual of Supplemental Consumer Education Teaching Strategies. Developed for Grades K-4.

Allegheny Intermediate Unit, Pittsburgh, Pa Spons Agency-Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C. Office of Consumers' Education.

Bureau No. -564AH80135 Pub Date-- 79

Note--- 290p.

Pub Type- Guides - Classroom - Teacher (052) EDRS Price - MF01/PC12 Plus Postage.

Descriptors—Academic Education, Art Activities, \*Behavioral Objectives, Concept Teaching, \*Consumer Education, Elementary School Mathematics, Elementary School Science.
\*Interdisciplinary Approach, Language Arts.
\*Learning Activities, Primary Education, Science Activities, Social Studies, Teaching Guides,
\*Teaching Methods

Designed for grades K-4, this manual contains suggested teaching strategies for infusing consumer education into the academic areas of art, language arts, mathematics science/health, and social studies. Each of the twenty to thirty learning activities provided for each of the academic areas is based on competencies related to one of four concepts, basic economics of the market place; legal rights, redress. and consumer law; major purchases of products and services; and special problems such as advertising and product safety. Included with the learning activities are resources needed, followup activities, and student performance indicators. All together, twenty-four consumer competencies, each with several sub-competencies, are novered (e.g., "Demonstrate the use of the monetary system," and "Analyze advertising and its influence on the consumer"). A resource list is appended (JH)

Course of Study for Consumer Mathematics.

Montgomery County Public Schools, Rockville, Md

Pub Date-77

Note-220p.: Contains occasional marginal legibility in Appendices

Pub Type— Guides - General (050) EDRS Price - MF01/PC09 Plus Postage.

Descriptors---\*Consumer Education, Curriculum \*\*Curriculum Guides, Elementary Secondary Education. Instruction. \*\*Mathematical Applications. Mathematics Education. \*Secondary School Mathematics. Teaching Guides, Units of

Eleven units comprise this Consumer Mathematics course for secondary school students: Consumer Decision Making; Personal Transportation; Insurance; Credit; Banking; Investments; Income Taxes; Food, Clothing, Furniture, Appliances; Housing, Budgeting, and Travel. The introduction to the teaching guide for Consumer Mathematics includes a rationale for the course, a description of the organization of the course of study, a general statement of objectives, a recommended time so ledule, a list of suggestions for implementation, and an annotated list of the three approved texts. Each of the eleven units contains the following: a statement of the purpose of the unit; instructional objectives; performance objectives: cross-references to approved texts; sample assessment measures and answers, suggestions to the teacher; a vocabulary list; a bibliography of books, periodicals, films, and kits; and appendices which include various tables and charts used with the assessment measures (DT)

0504

F10 120 542

Herr. Nicholas A.

Timecards, Payrolls, Checks, and Bank State-ments A Math Practice Booklet

Rutgers, The State Univ. New Bransway NJ Curriculum Lab

Spons Agency New Jersey State Dept of Educa-tion, Trenton Div of Vocational Education Report No. VI-102-620 Pub Date Teb 76

58p., For related documents, see CE 006 Note 940 943

Available from New Jersey Vocational Technical Curriculum Laboratory, Rutgers The State University, Building 4103 Kimier Campix, New Brunswick, New Jerses 08903

Pub Type Books (010)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Banking Business Stells, Educational Media, High School Students, \*Mathematical Applications, Mathematics Curriculum Mathematics ematics Materials, "Money Management Payroll Records, \*Recordkeeping, Records (Forms), Secondary Education, \*Vocational Education, Vo-cational High Schools, \*Workbooks

The objective of the workbook is to provide the vocational high school student with exercises in two areas of practical mathematics. The student will practice filling out time, ards, transferring the information to payroll records, using withholding tax tables correctly, and computing wages. In addition, he will learn how to manage a personal checking account by writing checks, keeping a running balance, making deposits, and reconciling a bank statement with the checkbook balance. Samples of timecards payroll records, tax tables, checks, bank statements and similar forms are used extensively throughout the text (RG)

0505 FD 088 996 Mathematics of Consumer Economics: Curriculum

Harlandale Independent School District, San Antonio, Tex Career Education Center

Spons Agency Office of Education (DHFW), Washington, D.C., Texas Education Agency, Austin. Dept. of Occupational Education and Technology Pub Date [70]

vote 120p

EDRS Price - MF01 PC05 Plus Postage.

Descriptors - Audiovisual Aids \*Career Educa-\*Consumer hoonomies, \*Curriculum Guides, Educational Objectives, Graphs, Instruc-tional Materials, \*Mathematics, Performance Specifications, Resource Materials, \*Secondary Education, Tables (Data), Teaching Methods. Units of Study Identifiers Texas

The purpose of this curriculum, guide is to help the economies teacher in his endeavor to fulfill his teaching responsibilities. Space is provided for teachers' additions, deletions, notes, and criticisms which will be useful when the guide is revised. The guide is arranged in vertical columns relating the consumer economics curriculum concepts to curriculum performance objectives, career concepts and performance objectives, suggested teaching methods, and audiovisual and resource materials Following a list of sources of audiovisual aids, examples and principles of money, banking, credit, budgets and interest are given in the appendix (DS)

Consumer Math 4, Mathematics: 5285-24.

Dade County Public Schools, Miami, Fla. Pub Date 71 Pub Date

Note 19p., An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01 PC01 Plus Postage.

Descriptors - Behavioral Objectives, \*Curriculum, Instruction, \*Mathematical Applications, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers - \*Quinmester Program

The last of four guidebooks for the General Math student covers installment purchases and small loans, investments, insurance, and cost of housing Goals and strategies for the course are given, performance objectives for computational skills and for each unit are specified. A course outline, teaching suggestions for each unit, and sample prefests and posttests are included. For other booklets in this set,

see SE 014 880 and SE 014 881 (DT)

0507 ED 067 288 Consumer Math 3, Mathematics: 5285.23. Dade County Public Schools, Miami, Fla Pub Date-- 71

Note—17p., An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, \*Curriculum,

Instruction, "Mathematical Applications, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers—\*Quinmester Program

The third of four guidebooks in a non-sequential course of study for the General Math student, this booklet includes computation on personal income, income tax, and retirement income. General goals and overall strategies are given for the course, then performance objectives for computational skills and or specific topics are listed. A course outline, teachor each unit are included. For other booklets in this et. see SE 014 880 and SE 014 882. (DT)

1508 ED 067 287 Consumer Math 2, Mathematics, 5285,22.

Dade County Public Schools, Miami, Fla Pub Date -71

Note-17p.: An Authorized Course of Instruction

for the Quinmester Program

EDRS Price - MP01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, \*Curriculum. Descriptors—Benavioral Objectives, "Curriculum, Instruction, "Mathematical Applications, Mathematics Education, "Objectives, "Secondary School Mathematics, "Teaching Guides, Tests Identifiers—"Quinmester Program

The second of four guidebooks for the General

Math student is designed to aid in developing computational skills. Topics covered include computation of interest on installment purchasing, discounts, cost of commercial transportation, balancing a budget, and using simple statistical information. A list of general goals for the course and overall strategies is given, then performance objectives are specified both for computational skills and for specific topics by the course. A course outline and teaching suggestions for each unit are included along with a skills pretest and posttest and with posttests for purchasing, transportation, and statistics. For other booklets in this set, see SE 014 881. and SE 014 882. (DT)

0509

ED 053 934

Schaum, June And Others Consumer Education in Eighth Grade Core and Mathematics 1970. Curriculum Guide.

Palatine Community Consolidated School District 15, 111.

Pub Date-70

Available from-Community Consolidated School

plications, Mathematics Education, Unit Plan This curriculum guide outlines a one-to-two week

consumer education unit for eighth grade students. It was written in response to Illinois Senate Bill 977 which required that all students in grades 8-12 be given instruction in consumer education. The lessons were developed to involve the students in stating problems, writing definitions, establishing goals, and suggesting activities. Specific objectives are given for each lesson, along with some suggested student activities. The lessons included are: understanding a definition of a consumer; individual consumer goals: banking, writing checks, and simple interest; installment purchases; budgeting; and comparison of prices and discounts. (RS)

0510 ED 048 149 Consumer Mathematics. Teaching Units.

North Carolina State Board of Education, Raleigh. Dept. of Public Instruction.

Pub Date-69 Note-169p.

EDRS Price · MP01/PC07 Plus Postage.

Descriptors—\*Curriculum Guides, \*Mathematical Applications, \*Mathematics Curriculum, \*Secondary School Mathematics

GRADES OR AGES: Secondary school. SUB-JECT MATTER: Consumer mathematics including-money management. transportation. probability, swindles and gyps, insurance, housing, taxes, consumer credit, banks, savings, and invest-

menus ORGANIZATION AND PHYSICAL AP-PEARANCE. The guide is divided into ten parallel units, one for each of the above areas, which lists objectives, activities, and materials. It is offset printed in a hard-cover, looseleaf notebook OB-JECTIVES AND ACTIVITIES Behavioral objectives for each unit are listed at the beginning of the unit. They are followed by lists of topics to be covered and descriptions of suggested activities. Activities are not correlated with any specific objective. Related mathematical problems and lists of suggested reading assignments are also given 1N-STRUCTIONAL MATERIALS. There is a list of resources at the end of each unit which includes both printed and audiovisual materials. STUDENT ASSESSMENT: It is suggested that the behavioral objectives for each unit be used in student assessment. OPTIONS. The guide is suggestive only it states that the teacher should feel free to add to. omit, or revise any part of it. (RT)

ED 044 284 Rogier, Paul V. And Others
Wilming on Operational Mathematics, Book 2.
Teacher v Edition.

Wilmington Public Schools, Del

Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research Bureau No.—BR-9-B-069

Pub Date--- 69

Grant — OEG-2-9-170069-1038 Note — 425p. EDRS Price - MF04 Plus Postage. PC Not Available from EDRS.

Descriptors—Business, Consumer Education, In-structional Materials, Low Achievement, \*Low Achievement, \*Mathematics Education, \*Secondary School Mathematics, Teaching Guides, Vocational Education. "Workbooks

This teacher's edition of a tenth grade general mathematics workbook attempts to show how certain mathematical skills are needed by the consumer. Each of the ten instructional units contains review exercises, practical applications, and practice problems for three levels of ability. Included are units on: (1) business forms, (2) algebra. (3) banking. (4) geometry, (5) taxes, (6) graphing, (7) data processing, (8) probability, (9) insurance, and (10) hospital work. [Not available in hardcopy due to marginal legibility of original document.] (RS)



ED 141 170

#### DECIMALS

0600

Rogers, Sandra

Laboratory Mathematics. Curriculum Booklet IV -Decimals.

Anderson County School District 2, Honea Path.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Note—37p.; For related documents, see SE 022 692-699; Not available in hard copy due to marginal legibility of original document Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Decimal Fractions. Educationally Disadvantaged. \*Elementary School Mathematics. Elementary Secondary Education, Experiential Learning, \*Fundamental Concepts, Individualized Instruction, \*Instructional Materials, Laboratory Procedures, Low Achievement, Mathematics Education, \*Units of Study. Worksheets

Identifiers-Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to decimals. Topics included in this booklet are place value, addition, subtraction, multiplication, division, renaming decimals, and sizes of decimals. The project was designed for middle school students (grades 5-8). (RH)

Cosler, Norma, Ed.

ED 123 069

Individualized Math Problems in Decimals. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Note-174p.; For related documents, see SE 020 628-048

Available from—Continuing Education Publica-tions, P.O. Box 1491. Portland. Oregon 97207 Pub Type—Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Decimal Fractions, Individualized Instruction. \*Instructional Materials. Mathematical Applications, Mathematics Education, Numbers, "Problem Sets, Secondary Education, "Secondary School Mathematics, "Vocational Education

Identifiers-\*Oregon Yo Tech Math Project THis is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is preanized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume concern use of decimals and are related to the fields of real estate, cierical work, auto mechanics, aviation mechanics, welding, diesel mechanics, machine tools, drafting, industrial mechanics, electricity and hydraulics, electronics, forest products, wood products, forestry, nursing, marketing, food processing, agriculture, and wastewater technology. Several of these vocational sections in this package include problems involving money computations; computation of ratios of two decimal fractions is stressed in others. (SD)

ED 120 548 0602

Herr. Nicholas K.

Decimals and Percents-A Math Practice Booklet. Rutgers. The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton. Div. of Vocational Education.

Report No.—VT-102-621

Pub Date-Feb 76

Note-74p.; For related documents, see CE 006 940-943

Available from-New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 (\$1.25) Pub Type-- Books (010)

à

EDRS Price · MF01/PC03 Plus Postage.

Descriptors—Arithmetic, \*Decimal Fractions.
Educational Media. High School Students.
\*Mathematical Applications. Mathematics Curriculum, \*Percentage. Secondary Education. riculum, "Percentage. Secondary Education. Tests. "Vocational Education, Vocational High Schools. "Workbesks

The problems in the workbook are designed to help the vocational high school student understand and become adept at working with decimals and percents. Emphasized are the use of decimals in money and the application of percents to problems in daily living. Topics occurred include: addition. subtraction, multiplication and division of decimals; the interrelationship of percents, decimals, and fractions; and the use of percents in interest and discount problems. Exercises with practical applications (called job assignments) constitute the bulk of the text. Quizzes are also included. (RG)

Thompson, Russ Fuller, Albert Basic Math I, Package 81-08, Multiplication and

ED 090 007

Division Using Decimal Numerals.

Arnold Public Schools, Nebr. Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE). Washington. D.C.

Pub Date—72
Note—22p.; For related documents, see SE 017 553

through 559 and SE 017 561 through 575

EDRS Price - MF01/PC01\*Plus Postage.

Descriptors—\*Decimal Fractions. Division. Grade

9. Individualized Instruction, \*Instructional Materials. Multiplication. Objectives, \*Secondary School Mathematics, "Teaching Guides, "Tests Identifiers—Elementary Secondary Education Act Title III. "General Mathematics

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package presents problems in multiplication and division with decimal numbers. This work was prepared under an ESEA Title III contract. (JP)

0604 ED 090 006

Thompson. Russ Fuller. Albert Basic Math I, Package 01-07. Addition and Subtraction Using Decimal Numerals.

Arnold Public Schools, Nebr.

Spons Agency—Burcau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note-24p.; For related documents, see SE 017 553 through 558 and SE 017 560 through 575 EDRS Price - MF01/PC01 Plus Postage. Descriptors—Addition. \*Deeimal Fractions. Frac-

itions. Grade 9, Individualized Instruction. In-structional Materials, Objectives. Secondary School Mathematics, Subtraction. Teaching Guides. Tests

Identifiers-Elementary Secondary Education Act

Title III. \*General Mathematics
This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audi-ovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each is oic covered. The work in this package reviews tire fractions as decimal numbers and presen ns on addition and subtrac-s. This work was prepared tion of decim under an ESE. III contract (JP)

ED 079 123 0665

ED 079 123 activities with a simals. Mathematics (Experimental): 5212...5. Activities wit-

Dade County Public Schools, Miami, Fla. Pub Date--71

Note-13p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price MF01/PC01 Plus Postage.
Descriptors—Algorithms, Behavioral Objectives.
Curriculum. Decimal Fractions. Instruction.
Mathematics Education. Objectives. Secondary School Mathematics. Teaching Guides. Tests

Identifiers .\*Quinmester Program

This guidebook, which sets minimum course content, is designed for the student who has acquired basic computational skills with non-negative rational numbers. The booklet covers computation skills with decimals. General goals and performance objectives, a course outline, teaching strategies, and sample test items are included. The quin is based on chapters from the text, "Essentials of Mathematics 2", by Sobel, Maletsky and Hill. A list of six additional references is provided. (DT)

ED 067 290

Double-S Decimals, Mathematics: 5211.20. Dade County Public Schools, Miami, Fla. Pub Date - 71

Note-25n: An Authorized Course of Instruction for the Quintester Program

EDRS Price - MF01/PC01 Plus Postage.
Descriptors - Behavioral Objectives. \*Carriculum, Instruction. Mathematics Education, Objectives.

\*Periediai Mathematics. \*Secondary School Mattiematics, \*Teaching Guides, Tests

The last of four guidebooks in the sequence, this booklet uses UICSM's "stretcher and shrinker" approach in developing place value, and four operations with decimals, conversion between fractions and decimals, and applications to measurement and rate problems. Overall goals, performance objectives for the course, teaching suggestions, and a suggested time schedule are included. Specific performance objectives for each topic are listed. Given is a bibliography of 16 references for enrichment and practice materials. For other booklets in the set, see SE 014 885 and SE 014 884. (DT)

ED 023 885

Rahmlow, Harold F. And Others Occupational Mathematics; Concepts of Decimals and Fractions, Report No. 16-I, Final Report, W-shington State Coordinating Council for Occupational Education, Olympia.: Washington State

pational Education, Orympia: Washington State Univ., Pullman, Dept. of Education.

Spons Agency—Office of Education (DHEW).

Washington, D.C.

Bureau No.—BR-7-0031

Pub Date—Jun 68 Grant—OEG-4-7-070031-1626 Note--63p.

EDRS Price - MF01/PC02 Plus Postage.
Descriptors— \*Arithmetic. \*Decimal Fractions.
 \*Programed Instructional Materials. \*Textbooks.

Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know the place value concept for decimals and be able to convert fractions whose denominations are 10, 100, or 1,000 to decimal form and write equivalent forms of integers and decimals by adding or removing zeros. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0608 ED 023 884

Rahmlow. Harold F. And Others Occupational Mathematics: Ratios and Fractions. Report No. 16-D. Final Report.

Washington State Coordinating Council for Occu-pational Education, Olympia: Washington State Univ., Pullman, Dept. of Education.

Univ. Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW).
Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG-4-7-070031-1626
Note—76p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors - \*Fractions, \*Programed Instructional Materials. \*Ratios (Mathematics). \*Textbooks. Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of

this program the student should be able to demonstrate (1) his recognition of fractions of the form a/b where a and b are letters or positive integers less than 100, (2) knowledge of the terms numerator and denominator, (3) how shaded areas of plane figures can be represented by fractions, (4) knowledg of the relationship between a ratio and a fraction and (5) that competency has been attained by answering four out of five multiple choice test items covering each objective. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 943

Rahmlow. Harold F. And Others

Occupational Mathematics; Conversion of Fractions into Decimals. Report No. 16-M. Final Report.

Washington State Coordinating Council for Occu-pational Education. Olympia.; Washington State Univ., Pullman. Dept. of Education. Spons Agency—Office of Education (DHEW), Washington D.G.

Washington, D.C.
Bureau No.—BR-7-0031
Pub Date—Jun 68
Grant—OEG 4-7-070031-1626
Note—1249.
EDBS Baller Ment (Property)

EDRS Price - MF01/PC05 Plus Postage.
Descriptors— Arithmetic. Decimal Fr

Descriptors—"Arithmetic. "Decimal Fractions.
"Fractions, "Programed Instructional Materials, \*Textbocks, \*Vocational Education

This programed mathematics textbook is for stu-dent use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to change simple fractions into decimals by writing them as equivalent fractions with their denominator a power of 10 and fractions into decimals by dividing the numerator by the denominator. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an in-troductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

0610

ED 022 942

Pahmlow, Harold F. And Others
Occupational Mathematics; Division of Decimals.
Report No. 16-L, Booklet II. Final Report.

Report No. 16-L, Booklet 11. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.
Bureau No.—BR-7-9031
Pib Data—Inn 48

Pub Date-Jun 68 Grant-OEG-4-7-070031-1626

--90p.

EDRS Price - MF01/PC04 Plus Postage.
Descriptors— Arithmetic, Decimal Fractions,
 Division, Programed Instructional Materials.
 Textbooks, Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to perform the division operation when the divisor is a decimal fraction. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 941

Rahmlow, Harold F. And Others
Occupational Mathematics; Division of Decimals.

Report No. 16-L. Final Report.
Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.-BR-7-0031

Pub Date—Jun 68 Grant—OEG-4-7-070031-1626

Note-131p.

EDRS Price - MF01/PC06 Plus Fostage.

Descriptors-\*Arithmetic, \*Decimal Fractions, Division, Programed Instructional Materials, \*Textbooks, \*Vocational Education

This programed mathematics tell ook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to correctly divide decimal fractions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 940

Rahmlow. Harold F. And Others Occupational Mathematics: Multiplication of Decimals, Report No. 16-K. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency-Office of Education (DHEW). Washington, D.C.

Bureau No.--- BR-7-0031

Pub Date-Jun 68

Grant-OEG-4-7-070031-1626

Note-152p.

EDRS Price · MF01/PC07 Plus Postage.

Descriptors-Arithmetic, Decimal Fractions. Multiplication, Programed Instructional Materials, \*Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to count decimal places, multiply any two decimal fractions, and round off a product to a given number of decimai places. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 939

Runmlow, Harold F. And Others

Occupational Mathematics; Addition and Subtraction of Decimals. Report No. 16-J. Final Report. Washington State Coordinating Council for Occupational Education, Olympia.: Washington State

Univ., Pullman. Dept. of Education. Spons Agency—Office of Education (DHEW), Washington, D.C.

Bureau No.-- 9R-7-0031

Pub Date-Jun 68

Grant--OEG-4-7-070031-1626

Note-100p.

EDRS Price · MF01/PC04 Plus Postage.

Descriptors-Arithmetic, Decimal Fractions, \*Fundamental Concepts, \*Programed Instructional Materials. \*Textbooks, \*Vocational Educa-

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to add and subtract decimal numbers to other decimal numbers and to integers. The material is to be used by 11dividual students under teacher supervision. Twenty-six other programed texts and an introductory volume arc available as VT 006 882-VT 006 909, and VT 006 975. (EM)

#### DIAGNOSIS

0700

ED 182 292

Dyreson, Margaret
Math Instruction Based on Identification of Student Performance Ne ds. An Educational Products Information Booklet.

Florida State Dept. of Education, Tallahassee. Of-

fice of Dissemination/Diffusion.
pon: Agency—National Inst. of Education
(D:1EW). Washington, D.C. Dissemination and

Resource: Group.
Pub Date—May 79
Contract—400-76-0089

Note--28p.

Available from—Florida Linkage System, Office of Dissemination/Diffusion. Florida Department of Education. Knott Building. Tallahassee, FL 32304 (\$1.00)

Pub Type— Reports - Descriptive (141)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Basic Skills. Educational Diagnosis. Inservice Teacher Education. \*Instructional Materials, \*Instructional Programs, \*Mathematics Instruction, \*Remedial Programs
Identifiers—Linking Agents, \*Research and Development Utilization Programs

lopment Utilization Program

This resource catalog is intended for the use of teachers and school administrators who wish to im-plement a program of mathematics instruction based on identification of student performance needs. The characteristics, objectives, and planning of such a program are discussed. Resource products are divided into the categories of teacher education, comprehensive math objectives, and math products that meet specific objectives. Program focus, grade level, and components are described. Ordering information is provided. (JD)

0701

ED 179 424

Brandau, Linda Easley, Jack
Understanding the Realities of Problem Solving in
Elementary School With Practical Pointers for

ERIC Information Analysis Center for Science.

Mathematics, and Environmental Education.

Columbus, Ohio.

Spons Agency—National Inst. of Education (DHEW). Washington. D.C.

Pub Date—Dec 79

Contract-400-78-0004

Note—71p.

Available from—Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 (\$2.00)

Pub Type-- Guides - General (050) - Guides -

Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Computation. "Educational Resources. Elementary Education, "Elementary School Mathematics. Mathematical Concepts, "Mathematical Concepts, "Mathematics Institute." Mathematics Curriculum, "Mathematics Instruc-tion. "Problem Solving, "Teaching Methods,

Teaching Skills
Identifiers—Information Analysis Products

This paper is divided into three parts. Part I connects the reality of the classroom with the idealism which arises from some of the problem solving literature. It is argued that a broader concept of problem solving is needed to provide a perspective for bridging the gap between the conceptions of problem solving in the literature and typical classroom practice. Part II examines what "problem solving" might mean in the context of the elementary school class-room. Part III considers how children can be helped to understand the non-arbitrary character of rules of arithmetic by examining the connectedness of mathematical ideas, rules, and procedures. Also included is a list of references and recommended readings, a list of specific pointers for teachers, and a conclusions section. (Author/MK)

ED 170 149

MEAP Support Materials for Mathematics. Michigan State Dept. of Education. Lansing.

Pub Date-[78]

Note—60p.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Achievement, \*Decimal Fractions,

Educational Assessment, \*Fractions, Inservice

Education. \*Instruction, \*Percentage, \*Ratios

(Mathematics). Secondary Education, \*Second
ary School Mathematics ary School Mathematics
Identifiers—\*Michigan Education Assessment Pro-

These materials are designed to be used as a tool

to in-service school personnel who may wish to improve achievement levels on the mathematics objectives as measured by the Michigan Education Assessment Program (MEAP). Four areas of mathematics instruction (fractions, decimals, ratio and proportion, and percent) have been addressed in these materials. These areas were selected because of the low attainment rates exhibited on the 7th and 10th grade MEAP. The materials were prepared to assist teachers whose students are having difficulties in one or more of these areas. The materials include an analysis of the errors students make on MEAP, diagnostic tests, and teaching suggestions. (MP)

0703

ED 142 401

Speer. William R. A Clinical Model for Diagnosing Mathematical

Deficiencies, (MD)2 Incorporating Educational Cognitive Style.

Pub Date—Apr 77
Note—40p.: Paper persented at the annual meeting of the American Educational Research Association (New York, New York, April 4-8, 1977); Contains occasional light type; Pages 15 and 16 "A Brief Guide to Cognitive Style Mapping Symbols and Their Meanings" removed due to copyright restrictions

Pub Type— Reports - Research (143)
EDRS Price - Ml'01/PC02 Plus Postage.
Descriptors—Cognitive Development. Cognitive

Style. Educational Diagnosis, Educational Research. Elementary Secondary Education, Flow Charts. Individualized Instruction, Instruction, Learning Theories. Mathematics Education. \*Remedial Mathematics

The model described is designed to provide the educational diagnostician with data relative to an individual's content deficiencies in mathematics. mathematics cognitive style, and educational cognitive style. A diagnosis of these three factors requires consideration of cognitive affective and psy-chomotor concerns. The diagnostic mapping of an individual includes personality factors as well as mathematical strengths and weaknesses. This mapping is used in conjunction with a mapping of available instructional resources in order to prescribe an effective remedial mathematics procedure. (Author/SD)

0704

ED 141 987

Mauser, August J.

A Performance Based Diagnostic Education Package for Teachers to Develop the Concept of Time and Telling Time in Learning Disabled Children. Pub Date-73

Note-41p.; Best Available Copy; Some print marginal and may not reproduce well

Available from—Department for Exceptional Children, 100 North First Street. Springfield, Illinois

O2///
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors— Arithmetic, Competency Based Education. Elementary Education. Learning Activities, Learning Disabilities. Monetary Systems. Number Concepts, Teaching Guides.

Intended for teachers of learning disabled children, the performance based learning package provides a list of steps for students to take toward obtaining competency in time and time telling. The package is broken down into eight milestones which include such steps as constructing a simple sundial as a group project, understanding that 15 minutes are equal to one quarter hour, and using A.M. and P.M. correctly when telling or writing time. The bulk of the document consists of appended materials which include the following: an outline of materials needed for each unit; an evaluation sheet; a list of suggestions for making arithmetic meaningful for students in grades 1 through 6; a program for teach-ing money concepts: and sample money problem worksheets. (SBH)

0705

ED 098 254

Babikian, Elijah Buchanan, Aaron
Developing a System of Criterion Referenced
Assessment-Reteaching Cycles in Textbook Supported Mathematics Instruction.

Southwest Regional Laboratory for Educational Re-search and Development, Los Alamitos. Calif.

Pub Date—[Apr 74]
Note—22p.: Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, Illinois, April 1974) Pub Type- Speeches/Meeting Papers (150)

EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Content Analysis. 'Criterion Referenced Tests. \*Elementary School Mathematics, Feedback. \*Mathematics Instruction, Mathematics Materials, \*Models, Performance Criteria, \*Textbooks

A system for developing assessment-reteaching cycles referenced to instructional outcomes is projected to enhance the effectiveness of elementary school mathematics textbooks. Salient precycle and paracycle features of the system are outlined. Procedures and activities to set the stage for instructional cycling are described, such as: translating the substance of activities provided in a mathematics textbook into instructional outcomes and performance modes, partitioning serially listed outcomes into 20-25 units, and developing criterion exercises for selected outcomes and performance modes in each unit. (Author)

0706

ED 086 743

Colvin. Dan

Improved Learning Practices Through Diagnosis of Individual Pupil Needs. Prescription and Implementation for Fulfilling Those Needs. (COLAMDA Project.)

Regional Center for Pre-Coll. Mathematics, Denver. Coic.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Colorado State Dept. of E. ucation. Denver. Pub Date-May 73

Note-234p.

EDRS Price - MF01/PC10 Plus Postage.
Descriptors—Course Objectives, Diagnostic Tests. \*Formative Evaluation. Individualized Instruction. \*Low Achievement. Mathematics Cur-Mathematics Curriculum, Mathematics Curriculum, Mathematics Instruction. \*Remedial Mathematics, \*Secondary School Mathematics, Testing Programs, \*Tests

Identifiers—Elementary Secondary Education Act Title III, \*Project COLAMDA

A complete mathematics testing program, involving diagnosis, prescription, and implementation, was developed by the Committee of Low-Achievers in Mathematics, Denver Area (COLAMDA) for use with low achievers in grades 7-12. A commete set of performance objectives serves as the course outline. Seventy-nine pretests and post-tests, covering whole numbers, decimals, fractions and percentages, determines student mastery of the objectives. (These tests and accompanying keys form a major part of this document). A computer is used to rapidly identify student deficiencies. The mathematics laboratory is the vehicle which introduces COLAMDA's innovative teaching strategies. Individualized instruction is accomplished through various fluid grouping techniques. Positive change in student and teacher attitude, as well as mathematical progress, is an integral part of evaluation of COLAMDA. For related information, sec TM 003 415. (NE)

0707

ED 086 559

Aceto, John D. Diagnostic Feedback System. Mathematics.
Racine Unified School District 1, Wis.
Spons Agency—Bureau of Elementary and Second-

ary Education (DHEW/QE), Washington, D.C. Pub Date—[72]

Note-132n.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Achievement, Diagnostic Tests.
\*Educational Diagnosis, Elementary School Mathematics. Evaluation. Guides. \*Instruction. Instructional Materials. Remedial Mathematics. Teaching Methods

Identifiers-Elementary Secondary Education Act Title III

Described is a program designed to help elementary teachers of grades three through seven diag-nose their students' mathematical competencies. This document is a package containing guides for a 14-day review of previous material for each grade level. Objectives and teaching strategies for daily lessons are detailed. Following the review, a diagnostic test is provided. An item analysis of the test is prepared by child, classroom, school and district and returned to the teachers in the school system where this program was developed and implemented. Standardized subtests in computation showed a marked increase in grades where the system was operating, while other areas of the curriculum were experiencing falling scores. This work was prepared under an ESEA Title III contract. (JP)



0708 ED 069 496 Lankford, Francis G., Jr. Some Computational Strategies of Seventh Grade Virgina Univ., Charlottesville, School of Education. tion.

Spons Agency—National Center for Educational Research and Development (DHEW/OE), Washington, D.C.

Bureau No.—BR-2-C-013

Pub Date—Oct 72

Grant—OEG-3-72-0035

Note—96p.

EDRS Price • MF01/PC04 Plus Postage.

Descriptors—\*Algorithms, \*Computation, Fractions, Grade 7, Learning, \*Mathematics Education, \*Research, Secondary School Mathematics, Whole Numbers

Whole Numbers

Identifiers—Diagnostic Interviews
One hundred seventy-six seventh grade students underwent a recorded interview where each was given a set of computational exercises and asked to say aloud his thinking as he worked them. The most frequently used strategies in computations with whole numbers and fractions are described in detail, an analysis of the nature of wrong answers is included, and characteristics of good and poor computers are listed and discussed. Thirteen conclusions are given, covering computational strategies, vertical vs. horizontal problem arrangement, mathematical vocabulary of students, estimating answers, and the technique of using recorded interviews in research. The computation problems are size at the students. problems given to the students are included in the report, and the appendices list all the wrong answers given with the accompanying verbal description by the student. (DT)

0709

ED 062 174

Harsh, J. Richard Diagnostic Mathematics [Form A, Form B, and Test Manual]. Fort Worth Independent School District, Tex.; Na-

tional Consortia for Bilingual Education, Fort Worth, Tex.

Spons Agency—Off Washington, D.C. Pub Date—[72] -Office of Education (DHEW),

Note—36p.

EDRS Price - MF01/PC02 Plus Portage.

Descriptors—\*Achievement Tests, \*Arithmetic, Diegnostic Tests, Grade 9, Grade 10. \*Secondary School Mathematics, Student Evaluation, Tests These materials consist of a test manual and two

forms of the test with corresponding answer keys.

The test provides a measure of the conventional sequence of arithmetic computation and selected applications. Each form consists of 44 completion items, with space for figuring. It is claimed that this type of response greatly reduces the guessing effect.



#### **ENRICHMENT**

0800

ED 175 702

Schaaf, William L., Ed. Reprint Series: Geometry. Measurement and Experience. RS-15.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date—69 Note—59p.; For related documents, see SE 028 676-689

Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum. "Enrichment, "Geometry, "Instruction. "Mathematical Applications.
Mathematics Education. Secondary Education.
"Secondary School Mathematics. Supplementary Reading Materials Identifiers—\*Proof (Mathematics), \*School Math-

ematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) geometry and experience: (2) geometry and empirical science; (3) physical geometry; (4) dimension; and (5) curves. (MP)

0801

ED 175:701

Schaaf, William L. Ed.

Reprint Series: Infinity. RS-14.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National science Foundation. Washington, D.C. Pub Date-69

Note-62p.; For related documents, see SE 028 676-690

Pub Type— Guides - Classroom • Learner (051)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum. \*Enrichment, \*Instruction. \*Mathematical Applications, Mathematics Education, "Number Concepts, "Numbers, Secondary Education, "Secondary School Mathematics, Supplementary Reading Materials Identifiers—"School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) is there an infini 1; (2) infinity and its presentation at the high school level; (3) the hierarchy of infinities and the problems it spawns; and (4) the motionless arrow. (MP)

0802

ED 175 700

Schaaf. William L. Ed. Reprint Series: Finite Geometry. RS-13.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date—69 Note—47p.; For related documents, see SE 028

676-690

Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors— \*Congruence. Curriculum. \*Enrichment. \*Geometry. \*Instruction. Mathematics Education. Secondary Education. \*Secondary School .Mathematics. Supplementary Reading Materials

Identifiers-\*Modular A-i-hmetic \*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) four finite geometries; (2) miniature geometries; (3) a coordinate approach to the 25-point miniature geometry; and (4) 25-point geometry. (MP)

ED 175 699

Schaaf, William L., Ed. Reprint Series: Memorable Personalities in Mathematics - Twentieth Century, RS-12.
Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date—69 Note—54p.; For related documents, see SE 028 676-690

Pub Type— Guides - Classroom - Learner (051)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum. \*Enrichment. \*History.
\*Instruction. \*Mathematicians. Mathematics \*Instruction. \*Mathematicians, Mathematics Education. \*Modern Mathematics, Secondary Education. \*Secondary School Mathematics, Supplementary Reading Materials Identifiers—\*School Mathematics Study Group This is one in a series of SMSG supplementary

and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics eovered include: (1) Srinivasa Ramanujan; (2) Minkowski; (3) Stefan Banach; (4) Alfred North Whitehead: (5) Waclaw Sierpinski; and (6) J. von Neumann. (MP)

0804

ED 175 698

Schaaf, William L., Ed. Reprint Series: Memorable Personalities in Math-

ematics: Nineteenth Century. RS-11. Stanford Univ., Calif. School Mathematics Study

G. oup.

Spons Agency—National Science Foundation.

Washington, D.C.

Note—61p.: For related documents, see SE 028 676-690

Pub Type— Guides - Classroom - Learner (051) EDRS Price - MF01/PC03 Flus Postage. Descriptors—Curriculum. \*Enrichment. \*History.

\*Instruction, \*Mathematicians, Mathematics Education, \*Modern Mathematics, Secondary Education, \*Secondary School Mathematics, Supplementary Reading Materials Identifiers—\*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Laplace: (2) Carl Friedrich Gauss: (3) Wolfgang and Johann Bolyai: (4) Evariste Galois: and (5) Josiah Wiliard Gibbs. (MP)

0805

ED 175 697

Schaaf, William L. Ed. Reprint Series: Geometric Constructions. RS-10. Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-67

Note-46p.; For related documents, see SE 028 676-690

Pub Type— Guides - Classroom - Learner (051) EDRS Price - MF01/PC02 Plus Postage. Descriptors—Curriculum, \*Enrichment, \*Geomet-

ric Concepts. \*Geometry. \*Instruction. Mathematics Education, Secondary Education, \*Secondary School Mathematics, Supplementary

Reading Materials

Identifiers—"Geometric Constructions, "School Mathematics Study Group

This is one in a series of SMSG supplementary

and enrichment pamphlets for high school students. The series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Euclidean constructions; (2) the geometry of the fixed compass; (3) certain topics related to constructions with straight-edge and compasses; and (4) unorthodox ways to trisect a line segment. (MP)

ED 175 696

Schaaf. William L., Fd.
Reprint Series: The Golden Measure. RS-9. Stanford Univ., Calif. School Mathematics Study

Group. Spons Agency-National Science Foundation.

Washington, D.C.

Pub Date—67
Note—50p.: For related documents, see SE 028 676-690

676-690

Pub Type— Guides - Classroom - Learner (051)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum. \*Enrichment. \*Geometry, \*History, \*Instruction. Mathematics Education. Measurement, \*Number Concepts. Secondary Education. \*Secondary School Mathematics, Supplementary Reading Materials Identifiers—\*School Mathematics Study Group This is one in a series of SMSG supplementary.

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the golden section; (2) the geometry of the pentagon and the golden section: (3) meet Mr. Tau; and (4) the golden section, Phyllotaxis, and Wythoff's game. (MP)

0807

ED 175 695

Schaaf, William L., Ed. Reprint Series: Mathematics and Music. RS-8. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-67

Note-28p.; For related documents, see SE 028 676-690

Pub Type- Guides - Classroom - Learner (051) EDRS Price - MF01/PC02 Plus Postage.

Descriptors-Curriculum, \*Enrichment. Arts, \*Instruction, Mathematics Education, \*Music. \*Number Concepts. Secondary Education. \*Secondary School Mathematics, Supplementary Reading Materials

Identifiers-School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphiets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the two most original creations of the human spirit: (2) mathematics of music: (3) numbers and the music of the east and west: and (4) Sebastian and the Wolf. (MP)

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ED 175 694

Schaaf. William L. Ed.

Reprint Series: Computation of Pi. RS-7.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-67

Note-37p.; For related documents, see SE 028 676-690

Pab Type— Guides - Classroom - Learner (051) EDRS Price - MF01/PC02 Plus Postage.

Descriptors-Curriculum. \*Enrichment. \*History. \*Instruction. Mathematics Education. \*Number Concepts, Secondary Education. \*Secondary School Mathematics. Supplementary Reading Materials

Identifiers--\*School Mathematics Study Group. Summation (Mathematics)

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the latest about pi: (2) a series useful in the computation of pi: (3) an ENIAC determination of pi and e to more than 2,000 decimal places: (4) the evolution of extended decimal approximations to pi; and (5) the calculation of pi to 106,265 decimal places. (MP)

Schaaf. William L., Ed.

Reprint Series: Nature and History of Pi. RS-6. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-67

Note-52p.; For related documents, see SE 028 676-690

Pub Type— Guides - Classroom - Learner (051) EDRS Price - MF01/PC03 Plus Postage.

Descriptors-Curriculum. \*Enrichment. \*History. \*Instruction. Mathematics Education, \*Number Concepts. \*Probability. Secondary Education. \*Secondary School Mathematics. Supplementary Reading Materials

Identifiers-\*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the history of the number pi: (2) what's new about pi; (3) the number pi; (4) pi and probability; and (5) from the Great Pyramid to Eniac. (MP)



Schaaf. William L. Ed.

Reprint Series: Space, Intuition and Geometry. RS-5.

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-67

Note-59p.; For related documents, see SE 028 676-690

Pub Type— Guides - Classroom - Learner (051) EDRS Price - MF01/PC03 Plus Postage. Descriptors—Curriculum. \*Enrichment, \*Geomet-

ric Concepts. \*Geometry. \*History, \*Instruction.
Mathematics Education. Secondary Education. \*Secondary School Mathematics, Supplementary

Reading Materials
Identifiers—\*School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) Helmholtz and the nature of geometrical axioms; (2) the straight line; (3) geometry and intuition; and (4) the curvature of space. (MP)

0011

ED 175 691

ED 175 692

Schaaf, William L. Ed. Reprint Series: Mascheroni Constructions. RS-4.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub .Date-67

Note--39p.; For related documents, see SE 028 676-690

Pub Type— Guides • Classroom - Learner (051) EDRS Price - MF01/PC02 Plus Postage. Descriptors—Curriculum, \*Enrichment, \*Geomet-

ric Concepts, \*Geometry, \*Instruction, Mathematics Education, Secondary Education. Secondary School Mathematics, Supplementary Reading Materials
I entifiers—\*Geometric Constructions. \*School

Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) a forerunner of Mascheroni; (2) Mascheroni constructions; and (3) can we outdo Mascheroni. (MP)

ED 175 690

Schaef. William L. Ed. Reprint Series: What is Contemporary Mathematics. RS-3.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-66 Note-41p.; For related documents, see SE 028 676-690

Pub Type- Guides - Classroom - Learner (051) EDRS Price - MF01/PC02 Plus Postage.

Descriptors-Curriculum, \*Enrichment, \*Instruction, "Logic, "Mathematical Applications, Mathematics Education, \*Modern Mathematics. Secondary Education, \*Secondary School Mathematics. ematics, Supplementary Reading Materials
Identifiers—"School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students.
This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the nature of mathematics; (2) mathematical inutility and the advance of science; and (3) logic. (MP)

0813

ED 175 689

Schaaf. William L. Ed. Reprint Series: Prime Numbers and Perfect Numbers, RS-2.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—66 Note—44p.; For related documents, see SE 028 676-690

Pub Type- Guides - Classroom - Learner (051)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Algebra, Curriculum. \*Enrichment.

\*Instruction, Mathematics Education. \*Number Concepts. \*Prime Numbers. Secondary Education, \*Secondary School Mathematics. Supplementary Reading Materials

Identifiers-School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) the prime numbers; (2) mathematical sieves; (3) the factorgram; and (4) perfect numbers. (MP)

ED 175 688

Schaaf, William L. Ed.

Reprint Series: Structure of Algebra. RS-1. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C. Pub Date—66

Note-45p.; For related documents, see SE 028 677-690

Pub Type-- Guides - Classroom - Learner (051)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra. Curriculum. \*Enrichment.

\*History. \*Instruction. Mathematics Education.

\*Number Systems. Secondary Education. \*Secondary School Mathematics. Supplementary Reading Materials
Identifiers—\*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series makes available expository articles which appeared in a variety of mathematical periodicals. Topics covered include: (1) axioms in algebra; (2) the foundations of algebra; and (3) noncommutative algebra. (MP)

0815

ED 175 687

Osborne. Marian M. Supplementary and Enrichment Series: The Mathematics of Trees and Other Graphs. SP-29. Stanford Univ.. Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-68

Note—36p.; For related documents, see SE 028 648-674; Contrins occasional light and broken

type
Pub Type— Guides - Classroom - Learner (051) —
Coliected Works - Serials (022)
EDRS Price - MF01/PC02 Plas Postage.
Descriptors—Curriculum, "Enrichment, "Geometric Concepts, "Graphs, "Instruction, Mathematics Education, Secondary Education, "Secondary School Mathematics, Supplementary Reading Materials, "Topology

Materials, \*Topology
Identifiers—\*School Mathematics Study Group
This is one in a series of SMSG supplementary and enrichment pamphlets for high school students.

This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include planar graphs, chains, and trees. (MP)

0816 Wolf. Frank L.

ED 175 686

Supplementary and Enrichment Series: Order and the Real Numbers a Guided Tour. SP-28.
Stanford Univ., Calif. School Mathematics Study

Group. Spons Agency—National Science Foundation. Washington, D.C. Pub Date—68

Note—40p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type-

Guides - Classroom - Learner (051) -Collected Works - Serials (022)
EDRS Price - MF61/PC02 Plus Postage.

Descriptors—Curriculum. Decimal Fractions. \*Enrichment, \*Instruction. Mathematics Education. \*Number Concepts, \*Nu.nber Systems. \*Rational Numbers. Secondary Education. \*Secondary School Mathematics. Supplementary Reading Materials

Identifiers—\*School Mathematics Study Group
This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include natural numbers, positive integers, sets, well

ordering, lower bound, upper bound, rational numbers, repeating decimals, real numbers, complete number systems, and irrational numbers. (MP)

0817 Scheid. Francis J., Ed. ED 175 685

Supplementary and Enrichment Series: 1+1=?. SP-27.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency- National Science Foundation, Washington, D.C.

Pub Date -66

Note-103p., For related documents, see SE 028 648-675; Contair's occasional light and broken

Pub Type -- Guides - Classroom - Learner (051) --

Collected Works - Serials (022)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Curriculum, \*Enrichment, \*Games, \*Instruction, \*Mathematical Applications, Mathematical Applications ematics Education, \*Puzzles, Secondary Educa-tion, \*Secondary School Mathematics, Mathematics. Supplementary Reading Materials
Identifiers—School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the basic rules of sequence arithmetic, ele-

mentary strategy, intermediate strategy, and advanced strategy, (MP)

0818 Bridgess M. Philbrick Ed

ED 175 684

Supplementary and Enrichment Series: The Mathematical Theory of the Struggle for Life. SP-26. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-66

Note—35p.: For related documents, see SE 028 658-675: Contains occasional light and broken Lype

Pub Type- Guides - Classroom - Learner (051) -Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Biological Sciences. Curriculum,

Enrichment, Environment. Instruction. \*Enrichment, \*Environment, \*Instruction, \*Mathematical Applications, Mathematics Education. \*Population Growth, Secondary Educa-tion, \*Secondary School Mathematics. Supplementary Reading Materials

Identifiers—\*School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the simplest version of the growth of a single population, a more realistic model of one popula-tion, and one species preying on another. (MP)

0819

ED 175 683

Bridgess, M. Philbrick, Ed. Supplementary and Enrichment Series: Absolute Value. Teachers' Commentary. SP-25.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation. Washington, D.C. Pub Date-66

Note-48p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type-- Guides - Classroom - Teacher (052) - Collected Works - Serials (022)

Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra, Curriculum, \*Curriculum
Guides, Enrichment, Graphs, \*Instruction, Mathematics Education, \*Number Concepts, Secondary Education, \*Secondary School Mathematics
Identifiers—\*Consplex Numbers, \*School Mathematics
Trady Graun ematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include addition and multiplication in terms of absolute value, graphs of absolute value in the Cartesian

plane, absolute value and quadratic expressions, complex numbers, and vectors. (MP)

0820 ED 175 682

Bridgess, M. Philbrick, Ed. Supplementary and Enrichment Series: Absolute

Value. SP-24. Stanford Univ., Calif. School Mathematics Study

Group. Spon: Agency—National Science Foundation, Washington, D.C.

Pub Date—66 Note—43p.; For related documents, see SE 028 648-675: Contains occasional light and broken type

Pub Type-Pub Type-- Guides - Classroom - Learner (051) -- Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Algebra, Curriculum, \*Enrichment, \*Graphs, \*Instruction, Mathematics Education. \*Number Concepts, Secondary Education, \*Secondary School Mathematics, Supplementary Reading Materials

Identifiers-\*School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include absolute value, addition and multiplication in terms of absolute value, graphs of absolute value in the Cartesian plane, absolute value and quadratic expressions, and absolute value, complex numbers. and vectors. (MP)

0821 ED 175 681 Clark, Ronald J., Ed.

Supplementary and Enrichment Series: Radioactive Decay. SP-23.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington D.C.

Pub Date—65 Note—17p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) —
Collected Works - Serials (022)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Curriculum, \*Enrichment, \*Instruc-

tion, "Mathematical Applications, Mathematics Education, "Physics, "Radiation, Secondary Education, "Secondary School Mathematics, Supplementary Reading Materials

Identifiers-School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include the law of decay, relative rate of change, and a general solution. (MP)

0822

ED 175 680

Calloway, Jean M., Ed.
Supplementary and Enrichment Series: Systems of
First Degree Equations in Three Variables. Teachers' Commentary. SP-22.

Stanford Univ.. Calif. School Mathematics Study Group.

Spors Agency—National Science Foundation. Washington, D.C.

Pub Date---65

Note-49p.: For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type- Guides - Classroom - Teacher (052) -Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra. \*Analytic Geometry, Curriculum. \*Curriculum Guides. Enrichment.
\*Graphs, \*Instruction, Mathematics Education, Secondary Education. \*Secondary School Mathematics c...atics Identifiers-\*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions, Topics covered include the coordinate system, distance formula, planes and first degree equations in three variables.

the graph of a first degree equation in three variables, intersecting planes, and parametric equations.

ED 175 679 Calloway. Jean M., Ed.

Supplementary and Enrichment Series: Systems of First Degree Equations in Three Variables. SP-

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation.

Washington, D.C. Pub Date-65

Note-44p.: For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) -

Pub 1ype—Guides Classroom Learner (031)—
Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*Algebra, \*Analytic Geometry, Curriculum, \*Enrichment, \*Graphs, \*Instruction, Mathematics Education, Secondary Education, Catherents (132) Secondary School Mathematics. Supplementary Reading Materials

Identifiers-School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered inelude a three dimensional coordinate system. distance formula, the equation of a plane, first degree equations in three variables, systems of first degree equations in three variables, and the line of intersection of two intersecting planes. (MP)

0824

ED 175 678

Syer, Henry W., Ed.
Supplementary and Enrichment Series: Mathematical Systems. Teachers' Commentary. SP-20

Stanford Univ., Calif. School Mathematics Study Group.

Oroup.

Spons Agency—National Science Foundation.
Washington, D.C.
Pub Date—65
Note—46p.: For related documents, see SE 028

648-675; Contains occasional light and broken

type
Pub Type— Guides • Classroom • Teacher (052) —
Works— Seriels (022) Collected Works - Serials (022) EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, \*\*Curriculum Guides.
Enrichment, \*Instruction, Mathematics Education, \*Number Concepts, \*Number Systems, Secondary Education, \*Secondary School Mathematics

Identifiers—\*Modular Arithmetic. \*School Mathematics Study Group

This s one in a series of manuals for teachers using SMSG high school supplementary materials. The pemphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include addition, multiplication, operations, closure, identity element, mathematical systems, mathematical systems without numbers, the counting numbers, whole numbers, and modular arithmetic. (MP)

0825

ED 175 677

Syer. Henry W., Ed.

Supplementary and Enrichment Series: Mathematical Systems. SP-19.
Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-65 Note-50p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, \*Enrichment. \*Instruction, Mathematics Education. \*Number Concepts. cepts. \*Number Systems, Secondary Education. \*Secondary School Mathematics, Supplementary

Reading Materials Identifiers—\*Modular Arithmetic, \*School Mathematics Study Group
This is one in a series of SMSG supplementary

and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include a new kind of addition and multiplication, operations, closure, identity, mathematical systems without numbers, and modular arithmetic (MP)

ED 175 676

Syer, Henry W., Ed.

Supplementary and Enrichment Series: Factors and Primes. Teachers' Commentary. SP-18.

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date--65

Note-27p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

Descriptors—Curriculum, "Curriculum Guides.
Descriptors—Curriculum, "Curriculum Guides.
Decimal Fractions, Enrichment, "Instruction,
Mathematics Education, "Number Concepts,
"Number Systems, "Prime Numbers, Secondary
Education, "Secondary, Secondary Education, \*Secondary Schoo! Mathematics Identifiers—\*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include factors and primes, perfect numbers, divisibility, expanded notation, repeating decimals, number systems in other bases, common factors, and common multiples. (MP)

0827 ED 175 675

Syer. Henry W., Ed. Supplementary and Enrichment Series: Factors and Primes. SP-17.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date---65 Note—58p.; For related documents, see SE 028 648-675; Contains occasional light and broken

type Pub Type- Guides · Classroom - Learner (051) =

Collected Works - Scrials (022) EDRS Price - MF01/PC03 Plus Postage.

Descriptors-Curriculum, Division, Enrichment, \*Instruction, Mathematics Education, \*Number Concepts. \*Prime Numbers. Secondary Educa-tion. \*Secondary School Mathematics, Supple-mentary Reading Materials

Identifiers--\*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include primes, factors, divisibility, greatest common factor, least common multiple, Robinson's Results, and Proth's Theorem. (MP)

ED 175 674

Schurrer, Augusta L. Ed.
Supplementary and Enrichment Series: Numeration. Teachers' Commentary. SP-15.
Stanford Univ.. Calif. School Mathematics Study

Spons Agency--National Science Foundation, Washington, D.C. Pub Date--65

Note-34p.; For related documents, see SE 028 648-675; Contains occasional light and broken

type
Pub Type— Guides - Classroom - Teacher (052) ---Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, \*Curriculum Guides,
Enrichment, \*Instruction, Mathematics Education, \*Number Concepts, \*Number Sys.ems, Secondary Education, \*Secondary School

Mathematics
Identifiers—\*Modular Arithmetic, \*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include history of numerals, the decimal system. expanded nume: ...ls and exponential notation, numerals in base seven, computation in base seven, changing from base ten to base seven, and numerals in other bases. (MP)



ED 175 673

Schurrer. Augusta L. Ed.

Supplementary and Enrichment Series: Numeration. SP-14.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-65

Note-49p.: For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) --Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors-Curriculum, Decimal Fractions. \*Enrichment, \*Instruction, Mathematics Education. "Number Concepts. "Number Systems. Secondary Education, "Secondary School Mathematics, Supplementary Reading Materials Identifiers-\*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered inciude the decimal system, exponential notation, base seven, and the binary and duodecimal systems. (MP)

0830

ED 175 672

Bridgess, Philbrick, Ed.

Supplementary and Enrichment Series: Inequalities. Teachers' Commentary. SP-13.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-64

Note-81p.; For related documents, see SE 028 #648-675; Contains occasional light and broken

Pub Type-Guides - Classroom - Teacher (052) -Collected Works - Senals (022)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors—\*Algebra, Curriculum, \*Curriculum Guides, Enrichment, \*Graphs, \*Inequalities, \*Instruction, Mathematics Education, Secondary Education, \*Secondary School Mathematics Identifiers-School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include order on the number line, properties of order, solution of inequalities, and graphs of open sentences in two variables. (MP)

ED 175 671

Bridgess, Philbrick, Ed.

Supplementary and Enrichment Series: Inequalities, SP-12.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date-64

Note-66p. For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) --Coilected Works - Serials (022)

EDRS Price · MF01/PC03 Plus Postage.

Descriptors-\*Algebra, Curriculum. \*Enrichment, \*Graphs, \*Inequalities, \*Instruction, Mathematics Education. Secondary Education. \*Secondary School Mathematics, Supplementary Reading Materials

Identifiers-\*School Mathematics Study Group This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quanitiy. Topics covered include order on the number line, properties of order, solution of inequalities, and graphs of open sentences in two variables. (MP)

0832

ED 175 670

Supplementary and Enrichment Series: Plane Coordinate Geometry. Teachers' Commentary. SP-11.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date---64

Hill. Thomas J., Ed.

Note-51p.; For related documents, see SE 028 648-675. Contains occasional light and broken

Pub Type— Guides - Classroom - Teacher (052) Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Algebra. Analytic Geometry. Curniculum. \*Curriculum Guides. Enrichment. \*Geometry, \*Graphs, \*Instruction, Mathematics Education, Secondary Education, \*Secondary School Mathematics

Identifiers--\*School Mathematics Study Group This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include definitions, parallel and perpendicular lines, distance formula, midpoint formula, linear equations, and circles. (MP)

0833

ED 175 669

Hill. Thomas J., Ed.

Supplementary and Enrichment Series: Plane Coordinate Geometry, SP-10.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C. Pub Date-64

Note-66p.; For related documents, see SE 028 648-675

Pub Type- Guides - Classroom - Learner (051) --Collected Works - Serials (022) EDRS Price - MF01/PC03 Plus Postage.

Descriptors—\*Algebra. \*Analytic Geometry. Curriculum, \*Enrichment, Geometry. \*Graphs, \*Instruction, Mathematics Education, Secondary Education, Secondary School Mathematics. Supplementary Reading Materials

Identifiers--- Proof (Mathematics). \*School Mathematics Study Group

This is one in a series of \$ 50 supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topies covered include graphs, slope, distance, mid-point, proof, equations, and circles. (MP)

ED 175 668

Clark, Ronald J., Ed.

Supplementary and Enrichment Series: Non-Metric Geometry. Teachers' Commentary. SP-9. Stanford Univ., Calif. School Mathematics Study

Group. Spons Agency-National Science Foundation.

Washington, D.C.

Pub Date -- 64

Note-26p.; For related documents, see SE 028 648-675; Contains oceasional light and broken

Pub Type— Guides - Classroom - Teacher (052) — Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum. \*Curriculum Guides. Enrichment, \*Geometric Concepts, \*Geometry, Instruction, Mathematics Education, Secondary Education, "Secondary School Mathematics, "Set

Identifiers-\*School Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet i. ludes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include points, lines, space, planes, names. ersection of sets, intersection of lines and planes, segseparations. angles. one-to-one correspondence, and simple closed curves. (MP)

0835

ED 175 667

Clark. Ronald J. Ed.

Supplementary and Enrichment Series: Non-Metric Geometry, SP-8.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 64

Note 44p., For related documents, see 8F, 028 648-675. Contains occasional light type

Pub Type - Guides - Classroom - Learner (054) Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors -- Curriculum, \*Enrie ent. \*Geometric Concepts, \*Geometry, \*Instruction, Mathematics Education, Secondary Education, \*Secondary School Mathematics, \*Set Theory, Supplementary Reading Materials

Identifiers--- \*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readity accessible in classroom quantity. Topics covered include points, lines, space, planes, segments, separations, angles, one-to-one correspondence, and simple closed curves. (MP)

0836

Kalman, Karl, Ed.

Supplementary and Enrichment Series: The System of Vectors. Teachers' Commentary, SP-7. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency - National Science Foundation. Washington, D.C.

Pub Date - 64

Note---38p.: For related documents, see SE 028 648-675

Pub Type- Guides - Classroom - Teacher (052) Collected Works - Serials (022)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Curriculum, \*Curriculum Guides, Enrichment, \*Geometry, \*Instruction, \*Mathematical Applications. Mathematics Education, Physics, Secondary Education, Secondary School Mathematics

Identifiers--\*School Mathematics Study Group. •Vectors (Mathematics)

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include directed line segments, applications to geometry, vectors and sealars, components, inner product, applications of vectors in physics, and vectors as a formal mathematical system. (MP)

0837

ED 175 665

ED 175 666

Kalman. Karl. Ed.

Supplementary and Enrichment Series: The System of Vectors. SP-6.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date- 64

Note-56p.: For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors--Curriculum, \*Enrichment, \*Geometry. \*Instruction, Mathematical Applications, Mathematics Education, Secondary Education, \*Secondary School Mathematics, Supplementary Reading Materials Identifiers—\*School Mathematics Study Group.

Vectors (Mathematics)

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include directed segments, applications, components. and inner products. (MP)



ED 175 664

0838

Kalman Karl Ed

plex Number System. Teachers' Commentary. SP-5. Supplementary and Enrichment Series: The Com-

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date---64

Note-62p.: For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type- Guides - Classroom - Teacher (052) -Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors-Algebra, Curriculum, Curriculum Guides, Enrichment, Graphs, \*Instruction, Mathematics Education. \*Number Systems. Secondary Education, \*Secondary School Mathematics Identifiers—\*Complex Numbers. \*School Math-

ematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include complex numbers, operations, standard form, equations, graphs and conjugates. (MP)

0839 ED 175 663

Kalman, Karl, Ed.

Supplementary and Enrichment Series: The Complex Number System. SP-4.

Stanford Univ., Calif. School Mathematics Study

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-64

Note—58p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type- Guides - Classroom - Learner (051) -Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.
Descriptors—\*Algebra, Curriculum, \*Enrichment,

\*Instruction, Mathematics Education, \*Number Systems, Secondary Education, \*Secondary School Mathematics, Supplementary Reading Materials

Identifiers-\*Complex Numbers. \*School Mathematics Study Group

This is one in a series of SMSG supplementary and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include operations, standard form, equations, graphs. and conjugates. (MP)

0840 ED 175 662

Dubisch, Roy. Ed.

Supplementary and Enrichment Series: Functions. Circular Functions. Teachers' Commentary.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation.

Washington, D.C. Pub Date—64

Note—59p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type- Guides - Classroom - Teacher (052) -Collected Works - Senals (022)

Collected Works - Senals (022)
EDRS Price - MF0i/PC03 Plus Postage.
Descriptors—Curriculum. "Curriculum Guides.
Enrichment. "Graphs, "Instruction, Mathematics
Education. Secondary Education. "Secondary
School Mathematics. "Trigonometry
Identifiers—"Functions (Mathematics). "School

Mathematics Study Group

This is one in a series of manuals for teachers using SMSG high school supplementary materials. The pamphlet includes commentaries on the sections of the student's booklet, answers to the exercises, and sample test questions. Topics covered include sets, definition and graph of a function, constant, linear and absolute-value functions, composition, inversion, one-to-one functions, ordered pairs. circular motion, graphs of sine and cosine, angles, vectors, addition formulas, tables of circular functions and waves. (MP)

0841

ED 175 661

Dubisch, Roy. Ed. Supplementary and Enrichment Series: Circular

Functions. SP-2. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency National Science Foundation. Washington, D.C.

Pub Date—64 Note—55p.; For related documents, see SE 028 648-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) - Collected Works - Serials (022)

EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum. \*Enrichment. \*Graphs. \*Instruction Mathematical Applications. Mathematics Education, Secondary Education, Secondary School Mathematics, Supplementary Reading Materials. \*Trigonometry Identifiers—\*Functions (Mathematics). \*Sehool Mathematics Study Group This is one in a series of SMSG supplementary

and enrichment pamphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include periodicity, graphs, angles, vectors, formulas, tables, waves, and applications. (MP)

0842

ED 175 660

Dubisch, Roy. Ed.

Supplementary and Enrichment Series: Functions, SP-1

Stanford Univ., Calif. School Mathematics Study

Group.
pons Agency—National Science Foundation, Spons Washington, D.C.

Pub Date—64 Note—47p.; For related documents, see SE 028 649-675; Contains occasional light and broken

Pub Type— Guides - Classroom - Learner (051) --Collected Works - Serials (022)

Collected Works - Serials (022)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum. "Enrichment. "Graphs.
"Instruction. Mathematics Education. Secondary
Education. "Secondary School Mathematics. "Set
Theory. Supplementary Reading Materials
Identifiers—"Functions (Mathematics). "School
Mathematics Study Group
This is one in a series of SMSG supplementary

and enrichment pariphlets for high school students. This series is designed to make material for the study of topics of special interest to students readily accessible in classroom quantity. Topics covered include: (1) graphs; (2) constant. linear, and absolutevalue functions; (3) composition and inversion; (4) one-to-one functions; and (5) ordered pairs. (MP)

ED 146 003

Artis, Margaret. Ed. And Others Tools and Concepts.

Institute for Services to Education, Inc., Washington, D.C.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C.

Bureau No.—BR-7-0867 Pub Date—70

Contract -- OEC-0-8-070867-9001

Note-76p.; Appendix material from ED 084 936: For related documents, see SE 019 970-974 Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.
Descriptors—\*College Mathematics, Curriculum,
Higher Education, Instruction, Instructional
Materials, Mathematical Concepts, Mathematical Enrichment, Mathematics, Mathematics Education. Secondary School Mathematics.
\*Teaching Guides
Idenrifiers—\*Thirteen College Curriculum Pro-

This guide provides enrichment for students to develop tools and concepts used in various areas of mathematics. The first part presents arithmetic progressions, geometric progressions, and harmonic progression. In the second section, the concept of mathematic induction is developed from intuitive induction, using concrete activities, to the principle of mathematical induction. Logarithms constitute the third section beginning with a review of laws of exponents and bases 2, 3, and 5 and concluding with common base 10 logarithms, antilogarithms, and interpolation. The final section of the guide deals with methods for introducing the slide rule (making a slide rule, parts of the slide rule, reading numbers on

the slide rule, multiplying and dividing with the slide rule). The guide contains student exercises and investigations plus suggested questions and references for teacher use. (JW)

ED 143 528

Faber, Norman J. And Others Mathematics and Living Things, Teacher's Commentary, Revised Edition.
Stanford Univ., Calif. School Mathematics Study

Spons Agency - National Science Foundation. Washington, D.C. Pub Date --65

Note: 182p.; For related document, see SE 023

005
Pub Type - Guides - General (050)
EDRS Price - MF01/ PC08 Plus Postage.
Descriptors - Biology. Geometric Concepts.
Grade 8, Mathematical Applications, Mathematics, Mathematics Education, Measurement,
Secondary Education, "Secondary School Mathematics," Secondary School Science, "Teaching

Identifiers—\*School Matnematics Study Group
Mathematics and Living Things (MALT) is designed for grade eight to enrich and supplement the usual courses of instruction. MALT utilizes exercises in biological science to derive data through which mathematical concepts and principles may be in roduced and expanded. The Teacher's Commentary includes suggestions for instruction, a list of needed equipment and supplies, a list of things to do to have materials ready for each chapter, background information and a section by section dis-us-

sion of each chapter, and answers to student exercises. (RH)

ED 143 527

Faber, Norman J. And Others
Mathematics and Living Things, Student Text. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.
Spons Agency-National Science Foundation,

Washington, D.C.

Pub Date—65 Note—228p.: For related document, see SE 023 006: Contains occasional light and broken type

Pub Type—Books (010)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors—Biology. Geometric Concepts.

Grade 8, "Instructional Materials, "Mathematical Applications, Mathematics, Measurement, Secondary Education, "Secondary School Mathematics, Secondary School Mathematics, Secondary School Science, "Textbooks Identifiers—"School Mathematics Study Group

This document is designed for grade eight to enrich and supplement the usual courses of instruc-tion. Mathematics and Living Things (MALT) utilizes exercises in biological science to derive data through which mathematical concepts and principles may be introduced and expanded. Chapters included are: (1) Leaves and Natural Variation Measurement of Length. Metric System. Ratio. and Graphing: (2) Natural Variation - "US": Addition of Graphing; (2) Natural Variation - "CS": Addition of Measurement and Greatest Possible Error; (3) Leaf Surface Area and Water Loss: Area, Significant Numbers, Scientific Notation; (4) Muscle Fatigue: Percent; Mean, Median and Mode: Informal Extrapolation, Histogram; (5) Yeast Metabolism: Linear Graphing, Curve Fitting, Extrapolation and Interpolation, Volume of a Cylinder; (6) Growth of Model, Bectangular, Coordinates, Extrapolation Mold: Rectangular Coordinates. Estimation of Area; (7) Size of Cells and Metabolism: Surface Area and Volume; and (8) Giant Trees: Formula Construction for Volume of Cylinder and Cone. Indirect Measurement. Equipment and materials needed are specified in the Commentary. (RH)

0846 ED 138 009

Cohn. Sanford J.

Individualizing Science Curricula for the Gifted. Pub Date-76

Pub Date—76

Note—14p.; Paper presented at the Annual meeting of the National Association for Gifted Children (October 14, 1976, Kansas City, Missouri)

Fub Type—Speeches/Meeting Papers (150)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—\*Acceleration. Advanced Placement Programs. \*Gifted. \*Individualized Instruction. Junior High Schools. \*Mathematics. \*Sciences Reported are methods of accelerating and in-

Reported are methods of accelerating and individualizing science and mathematics curricula for extremely gifted junior high school students as developed by the Study of Mathematically Precocious Youth (SMPY) and the Intellectually Gifted

Child Study Group. Given are examples of acceleration such as allowing the student to take more advanced courses in the standard sequence, taking advanced placement courses, taking special out of class college level courses, or receiving tutoring through the Oxford-Cambridge Tutorial Preceptory System of SMPY. A question is raised regarding the amount of laboratory work that is necessary for highly gifted science students. Sources of further information are provided. (DB)

0847

ED 100 103

Genslev. Juliana T.

.

Teaching Gifted Children Mathematics in Grades Four Through Six.

California State Dept. of Education, Sacramento Div. of Special Education.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-74

Note-44p.; For additional information see ED 082

Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors - Class Activities, Concept Formation, Creative Development, \*Curriculum Design, Exceptional Child Education, \*Gifted, Instructional Materials. Intermediate Grades, \*Mathematics. Resource Teachers. Sequential Learning. \*Teaching Guides. Teaching Methods

Identifiers - Elementary Secondary Education Act Title V

Intended for teachers of gifted students in grades 4-6, the guide emphasizes the need for specialized instruction in mathematics, suggests methods for teaching mathematical facts and concepts, describes approaches and materials to develop students' un-derstanding of mathematical principles, and explores ways to build skills and creativity. Stressed is the resource role of the mathematics specialist in diagnosing individual student needs and in planning a program to build sequential understandings and skills. Listed are mathematical facts and concepts (for sets and subsets, numbers and numeration, operations, mathematical sentences, measurement, graphs, and geometric figures) followed by suggested teaching activities such as using graph paper to diagram multiplication facts and using both a yardstick and a meter stick to measure student height. Suggested are games and experiences to help children discover and test mathematical generalizations. Recommended instructional approaches include using magic squares to develop computational skills, adapting the seminar teaching/learning style to encourage higher intellectual skills, and the discovery of alternate problem-solving methods to develop creativity. Noted is the relationship of mathematics to other subjects such as science, geography, and music and the need for coordination between mathematics specialists and teachers of gifted children at the elementary and junior high school levels. (LH)

0848

ED 092 411

Hill. Thomas J., Comp. Mathematical Challenges II, Plus Six.

National Council of Teachers of Mathematics, Inc., Washington, D.C. Pub Date-74

Note-122p.

Available from-National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091

Pub Type— Books (010)

EDRS Price - MFu. Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, Enrichment, Geometric Concepts, \*Mathematical Enrichment, Number Concepts, Probability, \*Problem Sets, \*Problem Solving, \*Secondary School Mathematics, Trigonometry

Identifiers-"National Council of Teachers of Mathematics

This book is a sequel to MATHEMATICAL CHALLENGES, which was published in 1965. In this sequel are 100 problems, together with their printed solutions. The problems range from those that are quite simple to those that will challenge even the most ardent problem solver, and they include examples from algebra, geometry, number theory, probability, and trigonometry. They are di-rected to students at the junior and senior high school levels, and with few exceptions they are taken from the pages of the MATHEMATICS STUDENT JOURNAL (recently renamed the MATHEMATICS STUDENT), a periodical publi-

cation of the National Council of Teachers of Mathematics (JP)

ED 092 380

Linville, William J. Higgins, James E. Activities for Elementary School Mathematics Enrichment.

Indiana State Univ. Terre Haute. Curriculum Research and Development Center

Pub Date--- May 74 Note--680.

Available from Curriculum Research and Development Center, Jamison Hall, School of Educa-

lopment Center, Jamison Hall, School of Educa-tion, Indiana State University, Terre Haute, Indiana 47809 (\$1.00) Pub Type— Guides - General (050) EDRS Price - MF01/PC03 Plus Postage, Descriptors— Activities, \*Elementary School Mathematics, \*Enrichment Activities, Experien-tial Learning, Games, \*Instruction, Mathematics Education, \*Number Concepts, Student Atti-rides, Student Motivation tudes. Student Motivation

This booklet is a collection of activities and games designed to supplement textbook and other instructional materials in an elementary school mathematics program. The selected activities propose to stimulate learning and enhance attitudes. Some provide practice with number facts; others explore various topics such as probability. The emphasis is on the affective domain, and the activities are not designed necessarily for mastery by all students. The purpose is pupil involvement without fear of failure.

0850

ED 082 415

Walker, Virginia Teaching Gifted Children Mathematics in Grades

One Through Three.
California State Dept. of Education. Sacramento Div. of Special Education.

Pub Date-73

Note-460.

Note—46p.

EDRS Price MF01/PC02 Plus Postage.

Descriptors—Class Activities, Creative Development. \*Exceptional Child Education, \*Gifted, Instructional Materials. \*Mathematics. \*Primary Education. \*Teaching Guides, Teaching Methods Intended for teachers of the mentally gifted in grades 1 theories 3 the guide distinguishes between grades I through 3, the guide distinguishes between the verbally gifted and the mathematically gifted and discusses subject matter content, development of intellectual skills and creativity, and gives teaching suggestions. Discussed are a different emphasis for the mathematically talented, the opportunities of unstructured programs, and the need for sequence and continuity. Also considered for determination nation of subject content are suggestions for the verbally gifted and broad applications of mathematics. Stress is put on the development of understanding, generalizations, and basic principles. Recommended for the improvement of mathematical skills are quantitative questions, open-ended problems, and individualized programs. The discovery method of teaching is encouraged for development of higher intellectual skills such as analysis-evaluation and synthesis-evaluation. A rich mathematical environment and a teacher who enjoys mathematics is suggested to develop creativity in mathematics. Mathematics instruction is seen to encourage the full development of the gifted child's human potential. Teaching suggestions include ways to use the number line, primitive number systems, nonmetric geometry with geoboards, and problem solving. (DB)

ED 079 163

Dalton, LeRoy C., Ed. Snyder, Henry D., Ed.

Topics for Mathematics Clubs.
National Council of Teachers of Mathematics, Inc.,
Washington, D.C.

Pub Date-73

Note-106b.

Available from—NCTM, 1906 Association Drive, Reston, Virginia 22091 (No price quoted) EDRS Price MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Algebra, \*Enrichment Activities, Geometric Concepts, Instruction, \*Mathematical Enrichment, Mathematics, Mathematics Educa-tion, Number Concepts, \*Resource Materials, \*Secondary School Mathematics, Topology

The ten chapters in this booklet cover topics not ordinarily discussed in the classroom: Fibonacci sequences, projective geometry, groups, infinity and transfinite numbers, Pascal's Triangle, topology, experiments with natural numbers, non-Euclidean geometries, Boolean algebras, and the imaginary

and the infinite in geometry. Fach chapter is written as a collection of related subtopics, and each in cludes a bibliography of references and further readings (DT)

0852

ED 052 025

Titterton, J. Patrick Some Meaningful Mathematics in Two Chapters: Chapter T1, The Binomial Expansion and Related Topics: Chapter T2, The Principle of Math Induction and Related Conjectures.

Syosset Central School District 2. Pub Date [71]

1430

EDRS Price - MF01 PC06 Plus Postage.
Descriptors \*Algebra, Grade 12, \*Instructional Materials, Mathematical Enrichment, Mathematics, \*Secondary School Mathematics, Textbooks The author presents material suitable for use by teachers of gifted students in the junior or senior year of high school. The mathematics presented includes mathematical induction, the hinomial expansion, number theory and Pascat's triangle. The author weaves much of the history of mathematics into the materials. Included are student tests and hibliographies of related materials (CT)

ED 035 543

Moore, Charles G. An Introduction to Continued Fractions.

National Council of Teachers of Mathematics, Inc., Washington, D.C. Pub Date- 64

Note 102n.

Available from National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washington, D.C. 20036

EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors— Fractions, History, "Instructional Materials, "Mathematical Concepts, "Muthematics, Number Concepts, Problem Solving, "Sec-

ondary School Mathematics

Provided is an introduction to the properties of continued fractions for the intellectually rurious high school student. Among the topics included are (1) Expansion of Rational Numbers into Simple Continued Fractions, (2) Convergents, (3) Continued Fractions and Linear Diophantine Equations of the Type am + bn = c, (4) Continued Fractions and Congruences. (5) Continued Fractions and Determinants, (6) Practical Applications of Continued Fractions, (7) Continued Fractions and Quadratic Irrational Numbers, (8) Continued Fractions and Pell's Equation. (9) Initially Repeating Continued Fractions and Quadratic Equations, and (10) Initially Repeating Continued Fractions and Reduced Quadratic Irrationals. Also included are proofs that show new relationships between bits of familiar mathematics, exercises that demonstrate the properties under investigations, answers to exercises in the appendix, and historical notes on the men who first worked with continued fractions. (RP)

0854 ED 017 453 MATHEMATICS I, VOLUME 2, EXPERIMEN-TAL EDITION.

Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BR-5-0647

Pub Date--66 Note--51P.

Note—31P.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors - \*Curriculum. Curriculum Development. Curriculum Guides. \*Instructional Materials, \*Mathematics, Secondary School Mathematics THIS IS VOLUME 2 OF A THREE-VOLUME

Mathematics
THIS IS VOLUME 2 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS CAN BE USED EITHER FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE TEACHER. THE PRESENTATION OF THE MATERIAL IS SUCH AS TO REFLECT CHANGES IN CONTENT. TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS. ON A NUMBER OF SEQUENTIALLY RÉLATED TOPICS ARE DESIGNED TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE. THIS VOLUME INCLUDES MATERIALS FOR (1)



MULTIPLICATION OF INTEGERS. (2) LATTICE POINTS IN THE PLANE AND MAPPING ON Z X Z, AND (3) SETS AND RELATIONS.

0855 ED 017 452 MATHEMATICS I, VOLUME 3, EXPERIMEN-TAL EDITION.

Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BR-5-0647
Pub Date—67

Note-118P.

Note—1187.

EDBS Price - MF01/PC05 Plus Postage.

Descriptors—\*Curriculum, Curriculum Development, Geometry, Grade 7, \*Instructional Materials, \*Mathematics, \*Secondary School

ment, Geometry, Grade 7, \*Instructional Materials, \*Mathematics, \*Secondary School Mathematics.

Mathematics
THIS IS VOLUME 3 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS ARE DESIGNED TO BE USED FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE MATERIAL IS SUCH AS TO REFLECT CHANGES IN CONTENT, TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS ON A NUMBER OF SEQUENTIALLY RELATED TOPICS ARE DESIGNED TO INCORPORATE MODERN TERMINOLOGY WITH THE SEADITIONAL TOPICS AND TO NATRODUCE NEW CONCEPTS AS APPROPRIATE THIS VCLUME INCLUDES MATERIALS FOR (1) TRANSFORMATIONS AND ORIENTATIONS OF THE PLANE, (2) SEGMENTS, ANGLES, AND ISOMETRIES, (3) ELEMENTARY NUMBER THEORY. (4) THE RATIONAL NUMBERS, AND (7) INCIDENCE GEOMETRY. (RP)

ED 017 451
SEVENTH YEAR MATHEMATICS, VOLUME
1. EXPERIMENTAL EDITION.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Report No.—BP-5-0647
Pub Date—66
Note—1022

Pub Date—66
Note—107P.

EDRS Price - MP01/PC05 Plus Posinge.
Descriptors—°Curriculum, Curriculum Development, Curriculum Guides, Grade 7. °Mathematics, Number Systems, "Secondary School Mathematics, Set Theory, "Statistics
THIS IS VOLUME 1 OF A THREE-VOLUME EXPERIMENTAL EDITION CONTAINING A SEQUENCE OF ENRICHED MATERIALS FOR SEVENTH-GRADE MATHEMATICS. THESE MATERIALS ARE DESIGNED FOR A PROGRAM OF INDIVIDUALIZED INSTRUCTION FOR THE ACCELERATED STUDENT OR FOR CLASSROOM PRESENTATION BY THE TEACHER. THE PRESENTATION OF THE MATERIAL IS IN SUCH A MANNER AS TO REFLECT CHANGES IN CONTENT, TECHNIQUE, APPROACH AND EMPHASIS. INSTRUCTIONAL UNITS ON A NUMBER OF SEQUENTIALLY RELATED TOPICS ARE STRUCTURED TO INCORPORATE MODERN TERMINOLOGY WITH THE TRADITIONAL TOPICS AND TO INTRODUCE NEW CONCEPTS AS APPROPRIATE. THIS VOLUME INCLUDES MATERIALS FOR (1) PLANNING A MATHEMATICAL PROCESS, (2) FINITE NUMBER SYSTEMS: (3) SETS AND OPERATIONS, (4) MATHEMATICAL MAPPINGS. (5) INTEGERS, AND (6) PROBABILITY AND STATISTICS. (RP) INTEGERS, AND (6) PROBABILITY AND STATISTICS. (RP)

ARITHMETIC ENRICHMENT IDEAS FOR GRADES 1, 2 AND 3. Cincinnati Public And 5.

Cincinnati Public Schools, Ohio. Ohio State Dept. of Education, Columbus.

Pub Date--64

Pub Date--64
Note--30P.
EDRS Price - MF01/PC02 Plus Postage.
Descriptors--6Arithmetic. \*Enrichment Activities, \*Grifted, Grade 1, Grade 2, Grade 3, Primary Education, Special Education
Identifiers--COLUMBUS
DOCUMENT CONTAINS NUMEROUS

SPECIFIC ACTIVITIES FOR UNDERSTAND-ING ELEMENTS OF THE NUMERATION SYSTEM. FUNDAMENTAL OPERATIONS, AND OTHER CONCEPTS SUCH AS TIME. FRACTIONS, AND APPROACHES TO GEOMETRY. A NUMBER OF GAMES AND PUZZLES ARE INCLUDED. THE ACTIVITIES WERE DEVELOPED BY TEACHERS AT A UNIVERSITY OF CINCINNATI WORKSHOP FOR THE IMPROVEMENT OF ARITHMETIC PROGRAMS FOR ACADEMICALLY GIFTED CHILDREN. (RM)

5i

This general mathematics guide, for use in grades

### **ENVIRONMENTAL CONCERNS**

0900

ED 182 133

Briggs, John And Others Idaho Energy Conservation Resource Guide for Mathematics, Grades 7-12.

Idaho State Dept. of Education. Boise : Idaho State

Office of Energy, Boise: Idaho State
Office of Energy, Boise.

Spons Agency—Department of Energy, Washington, D.C.
Pub Date—Feb 79
Note—35p.: For related documents, see SE 029
772-778. Printed on colored background.
Pub Type—Guides - Classroom - Teacher (052)
EDRS Price- MF01 Plus Postage. PC Not Available from EDRS. ble from EDRS.

Descriptors—Depleted Resources, \*Energy Con-servation, Environment, \*Environmental Educa-tion, \*Mathematics, Mathematics Education, Natural Resources, \*Resource Materials, \*Sec-ondary Education, Social Values, \*Teaching Guides

This manual is a tesource guide on energy conservation for teaching mathematics from grades seven to twelve. It contains 25 student activities which are grouped into four goal oriented units. The main objectives of the project are to increase the student's uniterstanding that: (1) Natural laws limit energy availability: (2) Energy consumption affects both and his equipment of 3) Hilman yellus and man and his environment; (3) Human values and attitudes affect energy usage; and (4) Energy consumption is necessary to maintain our life style. (SB)

0901 ED 100 670 Mathematics 9-12. Environmental Education

Guide. Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison, Pub. 2012. [74] Note-14,

Pub Type—Guide - General (050)

EDRS Price - MF - PO - Plus Portage.

Descriptors—Conservation Education. \*Ecology.

\*Environmental Education, Instructional Material als, Interdisciplinary Approach, Learning Activi-ties. \*Mathematical Applications, Mathematics Education. Natural Resources. Outdoor Education, Science Education, Secondary Education,
\*Secondary School Mathematics, \*Teaching

Identifiers—Elementary Secondary Education Act Title III. \*Project I C E

This mathematics guide, for use in grades 0-12, is one of a series of guides, K-12, that were developed by teachers to help introduce environmental education into the total curriculum. Since the nature of mathematics is abstract, students do not learn mathematics from ecology, nor ecology from mathematics. But, by observation and manipulation of environmental data, the students may inductively discover a principle in mathematics which can be reached deductively. The purpose of this booklet is to make an attempt to bridge mathematics and excloser. ecology. The guide is a supplementary handbook of ecologically-oriented mathematics exercises, designed to be self-contained and complete with an-swers. The exercises are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. The problems and exercises are de-signed to be integrated into algebra, geometry, advanced algebra, probability, statistics, trigonometry, and analysis. Each lesson deals with a mathematical concept and its applications to an environmental problem. Further, each lesson offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials. (Author/TK)

ED 100 669 Mathematics 8, Environmental Education Guide.

Project I-C-E, Green Bay, Wis.

Spons Agency—Burcau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.;

Wisconsin State Dept. of Education, Madison. Pub Date-[74]

Pub Date—[/4]
Note—48p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Computation, Conservation Education, Geometry, InEnvironmental Education, Geometry, Instructional Materials, Interdisciplinary Approach. Learning Activities, \*Mathematical Applications,

Mathematics Education, Natural Resources, Outdoor Education, \*Science Education, Secondary Education. \*Secondary School Mathematics, Teaching Guides

Identifiers—Elementary Secondary Education Acc Title III, \*Project I C E

This eighth grade mathematics guide is one of a series of guides. K-12, that were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design, containing a series of episodes (minilessons) that reinforce the relationships between ecology and mathematics. It is the teacher's decision when the episodes may best be integrated into the existing classroom curriculum. The epi-sodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels or subject levels. This guide focuses on aspects such as radius, geometry, and average and percent. The 12 concepts are covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, in-terdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. (Author 'TK)

ED 100 668 Mathematics 7, Environmental Education Guide. Project I-C-E. Green Bay, Wis.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C., Wisconsin State Dept. of Education, Madison. Pub Date-[74]

Pub Date—[19]
Note—44p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Computation. Conservation Education. \*Environmental Education, Grade 7. International Materials Interdisciplinary Approach. structional Materials, Interdisciplinary Approach, Learning Activities, \*Mathematical Applications, Mathematics Education, Natural Resources, Out-door Education, Ratios (Mathematics), Science Education, Secondary Education, Secondary School Mathematics, Teaching Guides Identifiers—Elementary Secondary Education Act Title III. Project 1 C E

This seventh grade mathematics guide is one of a series of guides. K-12, that were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design, containing a series of episodes (minilessons) that reinforce the relationships between ecology and mathematics. It is the teacher's decision when the episodes may best be integrated into the existing classroom curriculum. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program.

Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels or subject levels. This guide focuses on aspects such as proportion, competation, and Dercent. The 12 concepts are covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. (Author/TK)

0904 ED 100 664 General Math 9-12. Environmental Education

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison. Pub Date-[74]

Note-87p. Pub Type- Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.
Descriptors— Conservation Education. Environmental Education, Instructional Materials, Inter-

disciplinary Approach. Learning Activities.

\*Mathematical Applications. Mathematics Education, Natural Resources, Outdoor Education, Science Education, Secondary Education, \*Secondary School Mathematics. \*Teaching Guides Identifiers—Elementary Secondary Education Act Title III. \*Project I C E

9-12, is one of a series of gardes, R-12, that were developed by teachers to help introduce environmental education into the total curriculum. Since the nature of mathematics is abstract, students do not learn mathematics from ecology, nor ecology from mathematics. But, by observation and manipulation of environmental data, the student may in ductively discover a principle in mathematics which can be reached deductively. The purpose of this booklet is to make an attempt to bridge mathematics and ecology. The guide is a supplementary handbook of ecologically oriented mathematics evercises, designed to be self-contained and complete with answers. The exercises are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Each exercise is indexed by

and affective behavioral objectives, and suggested references and resource materials. (Author TK) ED 099 226

mathematical area and major mathematical concept

and cross indexed by environmental concepts. Each

lesson deals with a mathematical concept and its

applications to an environmental problem. Further, each lesson offers subject area integration, subject

area activities, interdisciplinary activities, cognitive

Kravnak, Ola

Freddie Fish. A Primary Environmental Study of Basic Numerals. Sets. Ordinals and Shapes. Broward County School Board, Fort L. aderdale,

Spons Agency - Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C.

Pub Date-- 73 Note -- 19p.

Pub Type-- Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Conservation Education, Elementary Education, \*Elementary School Mathematics, \*Environmental Education, \*Instructional Materials. Interdisciplinary Approach, \*Mathematics Education, Natural Resources, Pollution, Science Education, Teaching Guides, Water Resources

Identifiers--Elementary Secondary Education Act Title III

This teacher's guide and study guide are an environmental approach to mathematics education in the primary grades. The mathematical studies of the numerals 0-10, ordinals, number sets, and pasic shapes - diamond, circle, square, rectangle, and triangle - are developed through the story of Freddie Fish and his search for clean water. The preservation of wildlife and natural areas, and environmental stress limits are the environmental concepts behind this story of water pollution. The guide includes an illustrated story section, teacher information, objectives, suggested activities, and a post-test to be used after completing the guide. (TK)

ED 085 249

Waldner, Suzanne Evert. Michael T.
Junior High Mathematics Activities and Problems in Environmental Education: A Teacher's Guide. Milwaukee Public Schools, Wis. Div. of Curriculum and Instruction.

Pub Date-72

Note-56p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Curriculum, Environment, \*Environmental Education, \*Guides, Instructional Materials, \*Interdisciplinary Approach, Junior High Schools, Mathematical Applications, \*Mathematics Education, Problem Solving, \*Secondary School Mathematics

Identifiers - Elementary Secondary Education Act Title III

As its primary function, this publication is to provide ideas and suggestions for ways that junior high school mathematics teachers can include environmental concepts as a meaningful component of the ongoing instructional program in mathematics. It includes suggestions for activities and projects as well as environmentally-oriented problems which correlate with the mathematics concepts of the junior high program. Some activities require work outside of the classroom, but many may be used in presenting mathematical concepts. This work was prepared under an ESEA Title III contract. (JP)



ED 079 159

0907

Warpinski, Robert
A Supplementary Program for Environmental Education, Mathematics, Grade 10-12.

Project I-C-E, Green Bay, Wis.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72 Note-46p.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors-Behavioral Objectives, \*Environmental Education, Fundamental Concepts, Instructional Materials, Interdisciplinary Approach, Learning Activities, \*Lesson Plans, \*Mathemat-ics, \*Secondary Education, \*Teaching Guides Identifiers-Elementary Secondary Education Act Title III

Presented in this teacher's guide for grades 10-12 are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside re-source and community activities. Space is provided for teachers to, note resource and reference materials-publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

ROON

ED 079 158

Warpinski, Robert

A Supplementary Program for Environmental Education, Mathematics, Grade 7-8.

Project I-C-E, Green Bay, Wis.

Spans Agency—Bureau of Elementary and Secondary Education (DHEW/OE). Washington, D.C. Pub Date-72

Note—70p. EDRS Price - MP01/PC03 Plus Postage.

Descriptors-Behavioral Objectives. \*Environmental Education. Fundamental Concepts, Grade 7.
Grade 8. instructional Materiels, Interdisciplinary Approach, Learning Activities, \*Lesson Plans, \*Mathematics, \*Secondary Education. \*Teaching Guides Identifiers -- Elementary Secondary, Education Act

Title !

n these teacher's guides for grades seven ar. the lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note re-source and reference materials-publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

0909

ED 079 157

Warpinski, Robert

applementary Program for Environmental

Education, Mathematics, Grade 5-6.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Behavioral Objectives. \*Elementary Education. \*Environmental Education, Fundamental Concepts, Grade 5, Grade 6, Instructional Materials, Interdisciplinary Approach, Learning Activities, \*Lesson Plans. \*Mathematics. \*Teaching Guides

Id-ntifiers-Elementary Secondary Education Act

Presented in these teacher's guides for grades five and six are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials-publications, audio-visual aids. and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E tinstruction-Curriculum-Environment). (BL)

Warpinski, Robert

ED 079 156

A Supplementary Program for Environmental Education, Mathematics, Grade 2-4. Project I-C-E, Green Bay, Wis.

Spons Agency—Sureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date—72

Note—86p.
EDRS Price - MF01/PC04 Plus Postage.

Descriptors—Behavioral Objectives. \*Elementary Education. \*Environmental Education. Fundamental Concepts, Instructional Materials, Interdisciplinary Approach. Learning Activities, \*Lesson Plans, \*Mathematics, \*Teaching Guides Identifiers—Elementary Secondary Education Act

Presented in these teacher's guides for grades two through four are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community ac-tivities. Space is provided for teachers to note re-source and reference materials-publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under ar. ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment).

0911

ED 079 155

Warpinski, Robert

Supplementary Program for Environmental Education, Mathematics, Grade K-1.

Project I-C-E, Green Bay, Wis.

Spons Agency—Bureau of Elementary and Seconcary Education (DHEW/OE). Washington, D.C. Pub Date-72 Note-57p.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors-Behavioral Objectives, \*Environmental Education, Fundamental Concepts. Instructional Materials, Interdisciplinary Approach, Learning Activities. \*Lesson Plans, \*Mathemat-ics, \*Primary Education, \*Teaching Guides Identifiers—Elementary Secondary Education Act Title III

Presented in these teacher's guides for grades K-1 are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline ares, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list stu-dent-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials-publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

1000

ED 183 395

Charbonneau, Manon P. Fractional Parts. Elementary Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre Coll. Mathematics, Denver, Colo.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-74 Grant -NSF-GW-7720

-32p.: For related documents, see SE 030 305-322

cepts, Mathematics Curriculum, Mathematics Instruction, Mathematics Materials, Number Concepts. Worksheets

This module, concerned with fractional parts. centains 15 activity sheets. 12 of these involve stu-dents in making fractional parts and discovering the relationships of less than, equal to, and greater than. between different fractional parts. The last three sheets are for extending and enriching experiences with fractional parts. Teaching suggestions are provided for each activity sheet. (MK)

1001 EF: 141 169 Rogers, Sandra

Laboratory Mathematics. Curriculum Booklet III

Anderson County School District 2, Honea Path.

Spons Agency-Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date--17

Note—38p.: For related documents, see SE 022 692-699: Not available in hard copy due to mar-

ginal legibility of original document Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Educationally Disadvantaged. \*Elementary School Mathematics, Elementary Sec-Education. Experiential Learning. \*Fractions, \*Fundamental Concepts, Individual-ized Instruction, \*Instructional Materials, Laboratory Procedures, \*Low Achievement, Laboratory Procedures, \*Low Achievement, Mathematics Education, \*Units of Study, Worksheets

Identifiers-Elementary Secondary Education Act

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematic-Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to fractions. Topics included in this booklet are meanings of fractions, renaming fractions, multiplication, division, addition, subtraction, and sizes of fractions. The project was designed for middle school students (grades 5-8). (RH)

1002 ED 139 667

Breeding, Wayne And Others

Central Iowa Low Achiever Mathematics Project Rational Numbers.

Central Iowa Low-Achiever Mathematics Project. Des Moines.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.

Pub Date—[68]
Grant—OEG-67-03965-0
Note—270p.: For related doc\_ments, see ED 025 431-433 and ED 025 437; Contains occasiona!

marginal legibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC11 Plus Postage.
Descriptors—Curriculum, Instruction. \*Instructional Materials, Learning Activities, \*Low Achievement, Mathematics Education, Number Concepts, "Rational Numbers, Secondary Educa-tion, "Secondary School Mathematics. Teaching Guides. Units of Study. Worksheets Identifiers—"Central lowa Low Achiever Math-

ematics Project

Numerous activities related to thirteen behavioral objectives for rational numbers are presented in this booklet. For each of the objectives, a list of short activities and lab activities is given. Student work-sheets for the activities are provided. Concepts eovinclude writing numerals; representing

fractions; finding equivalent tractions; reducing fractions; working with mixed numbers, determining greater than and less than relationships; finding common denominators; finding reciprocals, and adding, subtracting, multiplying, as tidilling fractions. (PT)

ED 12" 130 Dirkse, Ronald And Others

An Activity Approach to Fractional Co. pts. Monograph No. 5. Michigan Council of Teachers of Mathematics.

Spons Agency-Michigan Education Assertation. East Lansing.

Pub Date-May 74

Note--50p., For Monographs 6-9 of this series, see SE020685-688

Available from- MCTM, Box 16124, Lansing, Michigan 48901 (\$1.00 each, prepaid)

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Elementary Education, \*Elementary School Mathematics, \*Experiential Learning, \*Fractions, Instruction, \*Instructional Materials. Leart, ag. Mathematics Materials. Teaching Worksheets

Identifiers-Michigan

This monograph focuses upon the teaching of fractional concepts. The introduction to fractional concepts is treated through sets, number lines, and area. Included are three diagnostic pretests, one of which can be administered to a nonreader. The major core of the monograph consists of 23 worksheets which can be removed for duplication. The worksheets introduce fractional concepts through a varicty of exercises involving sets, number lines, areas of figures, linear measures, and tangram activities.

1004 ED 123 070

Cosler. Norma. Ed. Individualized Math Problems in Fractions. Ore-gon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem. Career and Vocational Education Section. Pub Date-74

Note-118p.; For related documents, see SE 020

628-648: Occasional Marginal Legibility
Available from—Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207
Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Fractions, Individualized Instruction, Instructional Materials, Mathematical Applications, Mathematics Education, Numbers. Problem Sets, Secondary Education, \*Secondary School Mathematics, \*Vocational Education Identifiers—\*Oregon Vo Tech Math Project

eighteen sets of individualized This is one of mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This package contains problems involving computation with com-mon fractions and conversion of fractions to decimals. The problems are drawn from twnety vocational areas: food processing, marketing, real estate, drafting, machine tools, industrial nechanics. nursing, forestry, agriculture, fire and police science, welding, aviation mechanics, industrial, electrical, and hydraulics technology, dieser mechanics, clerical work, construction, wastewater technology, auto mechanics, wood products, and electronics. (SD)

1005 ED 120 549

Herr, Nicholas K. Fractions and Their Applications-A Math Practice

Booklet. Rutgers. The State Univ., New Brunswick, N.J. Curriculum Lab.

Spons Agency-New Jersey State Dept. of Education, Trenton. Div. of Vocational Education. Report No.—VI-102-622 Pub Date—Feb 76

Note—56p. For related documents, see CE 006 940-943

Available from-New Jersey Vocational-Technical Curriculum Laboratory, Rutgers-The State University, Building 4103 Kilmer Campus, New Brunswick, New Jersey 08903 (\$1.25) Pub Type— Books (010)

EDRS Price - N.F01 PC03 Plus Postage.

Descriptors - Arichmetic, Educational Media,
- Fractions, High School Students, Mathematics Curriculum, Mathematics Materials, \*Secondary Education, Tests, \*Vocational Education, Vincational High Schools, \*Workbooks

The workbook is intended to help the vocational high school student understand and gain a impetence in working with fractions. The evereises provide practice in reducing and changing tractions, multiplying, dividing finding a least commen denominator and equivalent fractions, adding and subtracting. The types of fractions are also define, Quizzes and problems with practical applications are utilized in the text to supplement the arranment. problems. (RG)

ED 166 113

Allen, LeDewey E., Jr.

The Teaching of Addition and Subtraction of Non-Decimal Fractions to Low Phase Secondary School Students.

Pub Date -29 Apr 74

Note- 49p; Best copy available, a posture of the text may reproduce marginally Pub Type - Miscellaneous (999) EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Addition, \*Fractions, \*Instruction, Secondary Education, \*Secondary School Mathematics, \*Slow Learners, Subtraction, \*Teaching Methods

The slow learner is defined as a student whose IQ fails between 75 and 90 or who ranks below the thirtieth percentile of the student population in mathematical achievement. His characteristics and special needs are discussed in some detail. A presentation of selected methods and techniques for instructing slow learners to add and subtract non-decimal fractions follows. Behavioral objectives, specific topics, and an estimated schedule are given. Resources required for this instruction are described. The strategy employs concrete examples to iii. maximum extent possible. The laboratory aproach and discovery methods are recommended The nature and use of a particular teaching aid are discussed. The emphasis in evaluation is on each student's progress. (KM)

ED 094 997

Israel, Joan

Mathematics for the Elementary School, Unit 20, Rational Numbers-

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spons Agen v. Jational Science Foundation, Washington. C

Pub Date-6 Note-78p.

Pub Type — € > - General (050)

C04 Plus Postage. EDRS Price -Descriptors - 4-. ... Curriculum,

Division. \*Elementar: 33' Mathematics, Experiential Learning, \*F: hoes, Instruction, \*Instructional Materials, Multiplication, Number Concepts,

\*Rational Numbers, Subtraction, \*Teaching
Guides, Units of Study, Worksheets
Identifiers—MNNEMAST, \*Minnesota Math-

ematics and Science Teaching Project. Number Operations

The Milinesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis or the coordination of mathematics and science in the elementary school curriculum Units are planned to provide children with activities in which they learn parious concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with commtechniques and disneepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented This unit introduces fractions by comparing different scales on number lines. The concept is built as a ratio between scales. As in the earlier units, operations with fractions are presented through activities involving the number line, the four operations, addition, subtraction, multiplication and division of fractions, are covered in this unit. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)



ED 093 713 1008 Rational Applications 4, Mathematics (Experi-mental): 5213.80.

Dade County Public Schools, Miami, Fla.

Note-16p.; An Authorized Course of Instruction tor the Quinmester Program. Related documents are SE 018 084-086
Pub Type— Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors-Behavioral Objectives, Computation. \*Curriculum, Decimal Fractions, Fractions, Instruction, \*Mathematical Applications, Mathematical Formulas, Mathematics, Nathematics Education, Number Concepts, \* Objectives, Percentage, Rational Numbers, Ratios (Mathematics). \*Secondary School Mathematics. \*Teaching Guides, Tests, Trigonometry, Whole Numbers Identifiers—\*Quinmester Program

The fourth of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on min. num course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Topics include ratio, proportion, and percentage applications and trigonometry. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Also included is a set of sample test items for skills and a list of resources. (JP)

ED 093 712 Rational Applications 3, Mathematics (Experimental): 5213.79.

Dade County Public Schools, Miami, Fla. Pub Date-72

Note—17p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 084-087

Pub Type- Guides - General (050) EDRS Price - MF01/PC01 Plus Postage.

Descriptors Behavioral Objectives, Computation.

\*Curric um, Decimal Fractions, Fractions, Geometric Concepts, Instruction, \*Mathematical Applications. Mathematics Education.

Measurement, Number Concepts, \*Objectives, Percentage. Rational Numbers. \*Secondary School Mathematics, \*Teaching Guides. Tests. Whole Numbers

Identifiers-Geometric Constructions, \*Quinmester Program

The third of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computations; skills with non-negative rational numbers. Topics include measurement and geometrical constructions. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Also included is a set of sample test items for skills and a list of resources. (JP)

2010 ED 093 711 Rational Applications 2, Mathematics (Experimentai): 5213.78.

Dade County Public Schools, Miami, Fla. Pub Date-72

Note-16p.: An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 084-087

Pub Type-- Guides - General (050) EF/RS Price - MF01/PC01 Plas Postage.

Descriptor Behavioral Objectives. Computation. \*Curriculum. Decimal Fractions, Fractions. Geometric Concepts, Instruction. \*Mathematical Applications, Mathematical Formulas, Mathematics, Methematics Education, Number Concepts, \*Objectives, Percentage, Rational Numbers, \*Secondary School Methematics, \*Teaching Guides. Tests. Whole Numbers

Identifiers-\*Quinmester Program

The second of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computational skills with non-negative rational numbers. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Included is a set of sample test items for skills and a list of resources. (JP)

ED 093 710 Rational Applications 1, Mathematics (Experimental): 5213.77.

Dade County Public Schools, Miami, Fla.

Note-16p.; An Authorized Course of Instruction for the Quinmester Program. Related documents are SE 018 085-087

Pub Type- Guides - General (050)

EDRS Price - MP01/PC01 Plus Postage.

Descriptors-Behavioral Objectives. Computation. \*Curriculum. Decimal Fractions. Fractions. Instruction. \*Marhematical Applications. Mathematics Education. Number Concepts.

\*Objectives. Percentage. Rational Numbers.

\*Secondary School Mathematics. \*Teaching Guides. Tests. Whole Numbers

Identifiers—\*Quinmester Program

The first of four quins intended to develop computational skills with non-negative rational numbers through applications to business and industry, this guidebook on minimum course content is designed for the student who has acquired basic computa-tional skills with non-negarive rational numbers. Overall course goals are specified, a course outline is provided, and performance objectives are listed. Included is a set of sample test items for skills and a list of resources. (JP)

ED 090 005

Thompson, Russ Fuller, Albert Basic Math I, Package 01-06, Addition and Sub-

traction of the Numbers of Arithmetic. Arnold Public Schools. Nebr. Spons Agency—Bureau of Elementary and Second-

ary Education (DHEW/OE), Washington, D.C. Pub Date-72 Note—37p.; For related documents, see SE 017 553 through 557 and SE 017 559 through 575

EDRS Price - MF01/PC02 Plus Postage. Descriptors-Addition. Division. \*Fractions.

Grade 9. Individualized Instruction. Inequalities. \*Instructional Materials, Multiplication. Objectives. \*Secondary School Mathematics. Subtraction, \*Teaching Guides. \*Tests

Identifiers—Elementary Secondary Education Act Title III, \*General Mathematics

This teacher guide is part of the materials pre-pared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape eassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package covers addition and subtraction of simple and mixed fractions. —ultiplication and division of mixed fractions and wirk on determining the relative size of two tractions. This work was prepared under an ESEA Title III contract. (JP)

1013 ED 090 004 Thompson, Russ Fuller, Albert Basic Math I, Package 01-65, Multiplication and

Division of the Numbers of Arithmetic. Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note—30p.: For related documents, see SE 017 553 through 556 and SE 017 558 through 575 EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Division. \*Fractions, Grade 9. In-

dividualized Instruction, \*Instructional Materials. Multiplication, Objectives, \*Secondary School Mathematics. \*Teaching Guides, \*Test:

Identifiers—Elementary Secondary Education Act
Title III. \*General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics student.. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 5-15. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. A review of fractions is presented in this parhage. The work deals with equivalent fractions and with multiplication and division of fractions. This work was prepared under an ESEA Title [[] ontact (JP)

ED 079 124 Activities with Fractions. Mathematics (Experimental): 5212.74.

Dade County Public Schools, Miami, Fla. Pub Date 71

Note-15p.; An Authorized Course of Instruction

for the Quinmester Program
EDRS Price - MF01, PC01 Plus Postage

Descriptors—Algorithms. Behavioral Objectives.
Curriculum. \*Fractions. Instruction. Mathematics Education, \*Objectives. \*Secondary School Mathematics. \*Teaching Guides. Tests Identifiers—\*Quinmester Program

Designed for the student who has acquired basic computational skills with non-negative rational numbers, this guidebook on minimum course content seeks further development of computational skills with fractions. General goals and performance objectives, a course outline, teaching strategies, sample test items, and a list or six references are included. The quin is based on chapters from the text, "Essentials of Mathematics 2", by Sobel, Ma-'sky and Hill (DT)

.15 ED 076 404

Boyer. Lee E. And Others Teaching Fractions with the Number Line. Math-

ematics Series No. 2. Pennsylvania State Dept. of Public Instruction, Harrisburg.

Pub Date-62

Note--- 14p.

Descriptors - Curriculum. \*Elementary School Mathematics. \*Fractions, \*Instruction. Mathematics Education, Number Concepts, \*Teaching Guides

Identifiers "No for Line

This book ...... ... Now a number line can be used to demonstrate the subtracting, multiplying, and dividing fractions 5/7 and 2/3 are first used a operation, then received a contact and leading to the perations on a hamiltoned to the contact are \$1.015 950 and \$15.015 951.

ED 010 949 Ramonal Numbers, Experiences in Mathematical Discovery (Number 7:

National Council Washington, D Pub Date -- 71 Mathematics, Inc.,

Pub Date -

Note- /

Note: r | Note: r | National Council of Teachers of Mathemetis. | 1201 | Sixteenth Street. | N. W., Washington D. C. 20036 (\$1.00) |
EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS

Descriptors—Eleme ary School Mathematics,
\*Fractions, Grade 9, Instruction,
\*Instructional
Materials, Low Achievement,
\*Mathematics
Education, Number Concepts, \*Number Systems. \*Secondary School Mathematics

This booklet is one of the ten in the series "Experiences in Mathematical Discovery", produced by the General Mathematics Writing Project of the NCTM. Each is designed for use by students of ninth-grade general mathematics. The discussion and problems are designed to guide the student through an understanding of: 1) fractions. 2) equivalent fractions. 3) rational numbers on the number line, and 4) the arithmetic of rational numbers. (RS)

ED 022 938

Rahmlow, Harold F. And Others
Occupational Mathematics; Division of Fractions. Report No. 16-H. Booklet II. Final Report.

washington State Coordinating Council for Op-pational Education, Olympia: Washington State Univ. Pullman. Dept. of Education. Spons Agency Office of Education (DHEW). Washington, D.C. Bureau No.—BR-7-0031

Pub Date-Jun 68

Grant -OEG-4-7-070031-1626 Note -103p.

EDRS Price - Mrv1 PC05 Plus Postage.
Descriptors—\*Arithmetic, \*Division, \*Fractions, \*Programed Instructional Materials, \*Textbooks,

\*Vocational Education This programed mathematics textbook is for stu-

dent use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these



mathematics competencies. After completion of this program the student should know that "quotient" indicates division and be able to: (1) divide a fraction of the form a b, where 0 is less than (a.b) and these are less than 100, by a positive integer less than 100. (2) divide a fraction of the irm alb by a fraction of the form cod, where 0 is less than (a, b, c, d) and these are less than 100, (3) divide mixed numbers by mixed numbers where the mixed numbers are of the form Xa/b where 0 is less than (X,a,b) and these are less than 100, (4) divide literal fractions, and (5) divide any combination of letters, fractions, integers, and mixed number offed above. The material is to be used by individual student under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, ... u VT 006 975.

1019

ED 022 937

Ruhmlow, Harold F. And Others Occupational Mathematics; Division of Fractions.

Report No. 16-H. Final Report.
Washington State Coordinating Council for Occupational Education. Olympia.; Washington State pational Education, (Nympia.; Washington State Univ., Pullman Dept. of Education.

Spons Agency Office of Education (DHEW), Washington, D.C.

Bureau No. – BR-7-0031

Pub Date Jun 68

Grant OEG-4-7-070031-1626

Descriptors— "Arithmetic, "Division, "Fractions, "Programed Instructional Materials, "Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational cl"sters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this prograin the student should know that "quotient" indicates division and be able to: (1) divide a fraction of the form a b, where 0 is less than (a,b) and these are less than 100, by a positive integer less than 100. (2) divide a fraction of the form a/b by a fraction of the form c.d. where 0 is 188 than (a,b,c,d) and these are 1.88 than 100, (3) divide mixed numbers by mixed numbers of the form Xa/b, where 0 is less then (X,a,b) and these are less than (0,0) and these are less than (0,0). than 100, (4) divide literal fractions, and (5) divide any combination of the letters, fractions, integers, and mixed numbers listed above. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

1020 ED 022 936

Ruhmlow, Harold F. And Others
Occupational Mathematics: Multiplication of
Fractions, Report No. 16-G. Final Report.

Washington State Coordinating Council for Occu-pational Education, Olympia, Washington State Univ., Pullman, Dept. of Education.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau No. - BR-7-0031 Pub Date—Jun 68

Grant--OEG-4-7-070031-1626

EDRS Price - MF01/PC05 Plus Postage.

Descriptors— \*Arithmetic, \*Fractions, \*Multiplication, \*Programed Instructional Materials, \*Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After competion of this program the student should know that the word "produc." indicates multiplication and be able to: (1) multiply two or three numeric fractions of the form a b, where 0 is less than (a.b) when these are less than 100. (2) multiply a numerical fraction of the form a b, where 0 is less than (a,b) when these are less than 100 by a caction containing a letter and a positive integer less than 100, (3) multiply two literal fractions of the form a b, (4) multiply a numeric fraction of the form a b, where 0 is less than

(a,b) and these are less than 100, and (5) multiple two mixed numbers of the form Xa b where O is less than (X,a,b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 935

Rahmlow, Harold E. And Others

Occupational Mathematics; Suoti ortion of Fractions. Report No. 16-F. Final Report. Bureau No. -BR-7-0031 Pub Date Jun 68

Grant OEG-4-7-070031-1626 Note : 101p.

EDRS Price - MF01 PC05 Plus Postage.

Descriptors "Arithmetic, "Fractions, "Programed Instructional Materials, "Subtraction, "Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupation. I lusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to (1) know that "difference" indicates the operation of subtraction, (2) order any set of fractions, (3) subtract a small fraction of the form a b where 0 is less than (a,b) when these are less than 100 from a larger fraction with the same denominator. (4) subtract a small fraction of the form a b, where 0 is less than (a,b) and these are less than 100, from a larger fraction of the same form with unlike denominators, (5) subtract two literal fractions with common denominators, (6) subtract two literal fractions with common denominators, (6) subtract two literal fractions with unlike denominators, and (7) subtract a small mixed number from a larger one of the form Xa b where 0 is less than (X,a,b) when these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975.

1022

ED 022 934 Rahmlow, Harold F. And Others

Occupational Mathematics: Addition clarac Report No. 16-E. Booklet II. Final Report. Washington State Coordinating Council for Occu-pational Education, Osympia: Washington State Univ. Pullman. Dept. of Education. Bureau No —BR-7-0031

Pub Date--Jun 68 Grant--OEG 17 770031-1626

iote-107p

(EM)

\*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) know 'sum" indicates the operation of addition, (2) add two or three numeric fractions of the form a b where 0 is less than + b and when a b is less than 100. (3) add two or three fractions of the form k.y. where 0 is less than k where I is less than 100 and y is the same literal denominator for all fractions. (4) add two or three literal fractions with the same denominators, and (5) add mixed fractions of the form Xa.b, where 0 is less than (X.a, and b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 933

Rahmlow, Harold F. And Others

Randow, Harold F. And Others

Cocupational Mathematics; Addition of Fractions,
Report No. 16-E. Final Report.

Washington State Coordinating Council for Occupational Education, Olempia.; Washington State Univ., Pullman. Dept. of Education.

Spons Agency Office of Education (DHEW),
Washington, D.C.

Bureau No. - BR-7-0031

Pub Date Jun 68

Grant OEC-4-7-070031-1626

945

Programed Instructional Materials, \*Textbooks,

\*Vocational Education

This programed mathematics textbook. Volume D is for student use in vocational educat-It was developed as part of a programmed series cosering 21 mathematical competencies which were identified by imiversity resear, hers through tiss analysis of several occupational clusters. The devel opment of a sequential content structure was also based on these mathematics competencies. After completion of 'his program the student should be able to (i) know that "sum" indicates the operation of addition, (2) add two or three numeric fractions of the form a b where 0 is less than a b and when a b is less than 100, (3) add two or three fractions of the form k y, where 0 is less than k when k is less than 100 and y is the same literal denominator for all fractions, (4) add two or three literal tractions with the same denominators, and (5) a fractions of the form Xa b, where this less than (X,a, and b) and these are less than 100. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VI 006 882-VT 006 909, and VT 006 975 (EM)

1024 ED 022 932

Rahmlow, Harold F. And Others

Occupational Mathematics; Equivalent Forms Report No. 16-C. Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia; Washington State Univ., Pullman, Dept. of Education

Spons Agency Office of Education (DHLW).

Washington, D.C.

Bureau No. BR-7-0031

Pub Date Jun 68

Grant - OEG-4-7-070031-1626

126p

EDRS Price - MF01 PC06 Plus Postage.

Descriptors \*Arithmetic, \*Fractions, Fundamens tal Concepts, \*Numbers, \*Programed Instructional Materials, \*Textbooks \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencie, which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to (1) change integers into equivalent forms, (2) change fractions into equivalent forms, (3) recognize prime numbers up to 20, (4) factor the number 100 into primes, and (5) reduce literal or numeric fractions The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 882-VT 006 909, and VT 006 975 (EM)

ED 022 931

Rahmlow, Harold F. And Cihers Occupational Mathematics: Equivalent Forms, Report No. 16-C. Booklet II. Final Report.

Washington State Coordinating Council for Occu-national Education, Olympia: Washington State

national Education, Olympia: Washington State 17.9. Pullman. Dept of Education Spons Agency Office of Education (DHEW). Washington, D.C. Bureau No. BR-7-0031 Pub Date. Jun 68. Grant. OEG-47-170031-1626. Note: 117p.

Note 1179.

EDRS Price - MF01 PC05 Plus Postage.

Descriptors "Anthmetic. "Fractions, Fundamental Concepts, "Numbers, "Programed Instrugal Materials, "Textbooks, "Vocational

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure is also based on these mathematics competencies. After completion of the program the student should be able to (1) strage integers into equivalent forms. (2) change



#### 44 **Document Resumes**

fractions into equivalent forms, (3) recognize prime rractions into equivalent forms, (3) recognize prime numbers up to 20, (4) factor the number 100 into primes, and (5) reduce literal or numeric fractions. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 882-VT 006 909, and VT 006 975. (EM)

1026 ED 067 291
Doable-S Fractions, Mathematics: 5211.15.
Dade County Public Schools, Miami, Fla.
Pub Date—71
Note—25p.; An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC01 Plas Postage.
Descriptors—Behavioral Objectives, "Curriculum, Instruction, Mathematics Education, "Objectives, "Remedial Mathematics, "Secondary School Mathematics, "Teaching Guides, Tests Identifiers—"Quinmester Program
The third of four guidebooks using UICSM's "stretcher and shrinker" approach, this booklet includes work with the four operations with fractions and mixed numbers, and problems with per cent.

and mixed numbers, and problems with per cent. Goals for the course, general performance objectives, teaching suggestions, and a suggested time schedule are given. Objectives for each topic are specified. A bibliography of 16 references for entirely and processes and processes are included. richment and practice activities is included. For other booklets in this set, see SE 014 885 and SE 014 883. (DT)



## **GENERAL MATHEMATICS**

General High School Mathematics.

New York State Education Dept., Albany. Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.

Pub Date-Aug 78

Note-- 73p.

Pub Tye- Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors - \*Calculators, \*Curriculum Guides, \*General Education, Geometry, Graphs, \*Mathematical Applications, Measurement. Number Systems. Secondary Education. \*Secondary School Mathematics. \*Teaching Guides Identifiers—\*General Mathematics

This outline is for a pre-algebra course designed to prepare students for algebra or to satisfy a one-year mathematics requirement. A key purpose is to present a practical mathematical experience. A detailed outline is given with a suggested time allotment for each chapter. A discussion of each topic follows with teaching suggestions and examples. The chapters are partitioned as basic units and supplementary units. Topics in the basic units include: integers; rational numbers; graphic measurement of geometric figures; ratio, propin, and percent; probametric figures; ratio, propbility and statistics; and consumer and job-related mathematics. Supplementary units include: inforrecreational mathematics; mal geometry: charts and calculators; volumes of geometric solids; and mathematical reasoning. (MP)

ED 098 065

Byers. James E. earning Activity Package, General Math 102, LAPs 13-24.

Ninety Six High School, S. C.

Pub Date—[73]
Note—85p.; See SE 018 193 for related document
Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Computation, Curriculum, Educa-

Asceptors—Computation, Curriculum, Educa-tion, \*Individualized Instruction, \*Instructional Materials, \*Learning Modules, Mathematics, Number Concepts, Objectives, \*Secondary School Mathematics, Teacher Developed Materi als, Teaching Guides, Units of Study

Identifiers-General Mathematics

This series of 12 teacher-prepared Learning Activity Packages (LAPs) for General Mathematics 2 covers the topics of numbers; descriptive statistics; calculations with whole numbers and percents; measurement: geometric concepts; formulas, areas, and volumes; introductory algebra: integers: indirect measurement; insurance, taxes, and savings; consumer mathematics; and different number bases. Each unit contains a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets to be completed, and tape recordings; and a student self-evaluation problem set. (DT)

ED 098 064

Byers. James E. Learning Activity Package, General Math 92, LAPs 1-12.

Ninety Six High School, S. C.

Pub Date-[73]

Pub Date—[73]
Note—85p.; See SE 018 194 for related document Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Computation, Curriculum, Individualized Instruction. Instructional Materials.
Mathematics Education. Number Concepts, Objectives. Secondary School Mathematics, Teacher Developed Materials. Teaching Guides.
Lints of Study. Units of Study

Identifiers- General Mathematics

This is a series of 12 teacher-prepared Learning Activity Packages (LAPs) for General Mathematics i. Topics covered include using mathematical tools; counting and computing measurement; whole and fractional numbers; measurement: decimal notation; percent; tables and graphs, introductory algebra: equations and applications; integers; and computing, managing, and using income. The units each contain a rationale for the material being covered; lists of behavioral objectives; a list of reading assignments, problem sets, tape recordings, and filmstrips that go with the unit, and a student selfevaluation problem set. (DT)

1103 ED 089 034 Fundamentals of Mathematics I and II: Curriculum Guide.

Harlandale Independent School District, San Antonio, Tex. Career Education Center

Spons Agency Office of Education (DHEW), Washington, D.C., Texas Education Agency. Austin. Dept. of Occupational Education and Technology.

Pub Date - [70] Note -111p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors--Audiovisual Aids. \*Career Education, \*Curriculum Guides, Educational Objectives. Educational Resources. Grade Instructional Materials, \*Mathematics, \*Performance Specifications, Resource Materials. \*Secondary Education, Teaching Methods, Units of Study

Identifiers-Texas

The guide is divided into two sections. Fundamentals of Mathematics I and Fundamentals of Mathematics II, Both sections are divided into vertical columns relating mathematical curriculum concepts to curriculum performance objectives; career concepts, performance objectives, general information and teaching activities; suggested teaching methods, and resource materials. Space is provided for teachers' notes which will be useful when the guide is revised. The first section is a three quarter course intended for ninth grade students whose Sievement level in mathematics is two or more years below grade level. The purpose of the curriculum guide is to improve on the textbook used district-wide by implementing its coverage, describing supplementary material, and, in general, aiding the teacher. The second section describes a curriculum designed to relate mathematics to daily living and to present topics that are useful in becoming a wise consumer. Appended materials emphasize consumer credit. (AG)

i 104 ED 080 329 Prop-In Mathematics, Teacher's Manual.

Arkansas State Dept. of Education, Little Rock Shons Agency-Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date-[72]

Note---145p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Curriculum, \*Grade 9. Instruction.

\*Instructional Materials, Mathematics Educaon, \*Secondary School Mathematics, \*Teaching Guides, Tenening Methods Identifiers—\*General Mathematics

This teacher's manual accompanying the ninthgrade general mathematics workbook, Drop-In Mathematics, states objectives for each of the topics covered, suggests teaching methods, lists resource materials, and provides an answer key for problems in the text. Enrichment activities are included in the appendix. For student materials, see SE 016 406. (DT)

1105

Note-264p.

ED 080 328

Underwood, Evelyn. Ed. And Others Drop-In Mathematics.

Arkansas State Dept. of Education, Little Rock Spons Agency - Bureau of Elementary and Secondary Education (DHEW/OE), Washington. Pub Date-72

EDRS Price - MF01/PC11 alus Postage.

Descriptors -- Curriculum, \*Grade 9, Instruction, \*Instructional Materials, Mathematical Applications, Mathematics Education, Measurement, Number Concepts. Number Systems. \*Secondary School Mathematics, \*Workbooks

Identifiers-General Mathematics

This material, organized in a workbook format, was developed to be used with the non-college bound, lower one-third of the ninth-grade student population. Topics covered are flowcharts, set theory, number systems (natural numbers, whole numbers, integers, and rationals), number operations, percentage, measurement, finance, geometric constructions, statistics, and number bases. For the teacher's manual, see SE 016 407 (DT)

1106 ED 062 157

A Course in Basic Mathematics for Colleges. Committee on the Undergraduate Program in Mathematics, Berkeley, Calif bons, Agency, National Science, Foundation,

Spons Agency N Washington, D C

Pub Date Jan 71

Note 640.

Available from CUPM, P. O. Box 1024, Berkeley, California 94701 (Free)

EDRS Price - MF01 PC03 Plus Postage.

Pescriptors Algebra, \*College Mathemanics, \*College Programs, Computers, Flow Charts, Geometry, Mathematics Education, \*Remedial Programs, Undergraduate Study

Identifiers Committee on the Undergraduate Program in Math

This booklet describes a one year college course for students in the lower half of the mathematics ability range. The main aim of the course is to "provide the students with enough mathematical interacy for adequate participation in the daily life of our present society." A second aim is remedial, to allow a student to continue with further mainematics courses. The course covers (in order). Flow charts and elementary operations. Rational numbers, Geometry I, Linear polynomials and equations. The computer. Nonlinear relationships, Geometry II. Statistics, and Probability. The commentary includes notes on feathing the coarse, recommendations on Constatory activities, and sample evereises (MM)

1107 ED 062 155 Applied Stathematics in the Undergraduate Curriculum.

Committee on the Undergraduate Program in Mathematics, Berkeley, Calif.

Spons Agency National Science Foundation, Washington, D.C

Jan 72 Pub Date

Note -60p.

Available from CUPM, P. O. Box 1024, Berkeley, California 94701 (Free)

EDRS Price - MF01/PC03 Plus Postage.
Descriptors: \*College Mathematics.\*(\*) a
grams, \*Curriculum, \*Mathematic.
tions. \*Mathematical Models, Nacional College Mathematical Models. Applica-Education, Undergraduate Study

Identifiers—Committee on the Undergraduate Program in Math

After considering the growth in the use of mathematics in the past 25 years, this report makes four major recommendations regarding the undergraduate curriculum: (1) The mathematics department should offer a course or two in applied mathematics which treat some realistic situations completely, including the steps of problem formulation, model building, problem solution with associated computations, and result interpretation. Three suggested courses, centered on the topics of optimization. graph theory and combinatories, and fluid mechanies, are outlined with references and sample prob-lems; (2) A greater number of realistic applications from a greater variety of fields should be introduced nto the mathematics courses of the first two years; (3) Every student whose degree includes a substantial number of mathematics courses should take at least one course in applied mathematics. This recommendation applies to prospective secondary school mathematics teachers as well as mathematics majors; and (4) An undergraduate concentration in applied mathematics should be offered if the resources of the college permit. (MM)

1108 ED 050 056 Mathematics Curriculum Guide, Basic Mathematics 9-12.

Gury City Public School System, Ind. Pub Date - 68

Postage: MF01 PC05 Plus Postage.

Descriptors: \*Curriculum Guides, Grade 9, Grade 10, Grade 11, Grade 12, \*Mathematics, \*Secondary School Curriculum, \*Secondary School Mathematics.\*

GRADES OR AGES: Grades 9-12, SUBJECT MATTER: Basic mathematics, ORGANIZATION AND PHYSICAL APPEARANCE: The guide has three main sections general mathematics, applied mathematics, and senior mathematics. The material in each section is set out in four columns major areas, significant anticipated outcomes, observations and suggestions, and references and films. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: Objec-



tives are listed at the beginning of each section. The content of the major areas is described but activities specified in detail. INSTRUCTIONAL MATERIALS: Texts, films, and filmstrips are listed for the major areas, and a bibliography and list of film distributors is given at the end of each section.
STUDENT ASSESSMENT: A multiple choice test is included for use in evaluating basic concepts of mathematics studied in each of the three sections

1109

ED 025 433

Zimmerman, Joseph T. Central Iowa Low Achiever Mathematics Project · Low Achiever Motivational Project.

Central lowa Low-Achiever Mathematics Project, Des Moines; Des Moines Public Schools, Iowa, Spons, Agency—Office of Education (DHEW), Washington, D.C. Bureau of Elementary and Secondary Education.

Pub Date-[Nov 68] Grant-OEG-3965

–145p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Algebra, Arithmetic, Geometry, Grade 7, Grade 8, Grade 9, Instruction, \*Instruc-tional Materials, \*Low Achievement, \*Mathematics, \*Secondary School Mathematics Identifiers—Central Iowa Low Achiever Math-

ematics Project

he mate als in this booklet are designed especially for the low achieving student in mathematic Containing some materials from a course in general mathematics, the booklet is intended to be used in conjunction with conventional textbook materials and is designed to serve as a source of new ideas for teachers and to relieve the teacher of much unnecessary work in preparing attractive and instructional mimeographed materials. Mathematical concepts are drawn from such topics as algebra, fractions, graphing, geometry, measurement, and computa-tional skills. This work was prepared under ESEA Title III contract (RP)

ED 021 734

Handbook for General Mathematics.

Maryland State Dept. of Education, Baltimore. Pub Date --- 66

ote-147p.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—Algebra, Arithmetic, \*Course Content, \*Curriculum, Geometry, Instructional Materials, \*Mathematics, Noncollege Bound Students, \*Secondary School Mathematics, State Departments of Education, \*Teaching Guides Identifiers --Maryland

This handbook for general mathematics presents some classroom materials to aid the teacher of no.1 college-bound pupils. The materials are intended to be of assistance to teachers in teaching the materials in a manner which will maximize the mathematical flexibility as well as the mathematical skills of the pupils. The goal was to prepare a booklet of ideas and approaches to mathematics for all teachers of general mathematics. Classroom materials are provided in the content areas of natural numbers, integers, rational numbers, and geometry. (RP)

ED 021 733

McComb, Patricia Applied Mathematics, Secondary Schools, Grades 10-12.

Minnesota State Dept. of Education, St. Paul. Report No.-- CURR-BULL-20A

Pub Date-64 Note-115p

EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Computers, Curriculum, \*Curriculum Guides, Instruction, \*Mathematical Applications, \*Mathematics, Secondary School Mathematics Identifiers—Department of Education, Minnesota

This manual indicates a practical approach to the topic of general or consumer mathematics as taught in senior high school. This course is intended for those pupils who cannot succeed in the sequential high school mathematics course. The material for this course has been selected to provide experiences which will tend to improve the mathematical competence of future workers an citizens. The objectives of these materials are (i) to increase accuracy, understanding, and efficiency in computational skills. (2) to develop new computational skills and extend the understanding of number and computational processes. (3) to provide skill in collecting, reading, organizing, and interpreting data, (4) to develop an attitude of social-mindedness acquired through a study of consumer problems. (5)

to provide the mathematical skill and knowledge necessary to cope with the problems of the consumer and citizen. (6) to provide the basic mathematics needed by pupils in their future work and study in the trades and semi-professional occupations, (7) to stimulate an interest in learning mathematics, and (8) to provide an opportunity to demonstrate such traits as creativity, imagination, ariosity, and vizualization. (RP)

ED 019 226

ROGLER, PAUL V.
WILMINGTON OPERATIONAL MATHEMATICS PROGRAM.

Wilmington Public Schools, Del. Report No.—BR-6-8786

Note---169P.

Note-169P.

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Algebra, "Curriculum, "Curriculum
Development, Geometry, Grade 9, "Mathematics, "Secondary School Mathematics."

Identifiers—DELAWARE, Delaware (Wilmington), Wilmington Public Schools DE.

THIS PROJECT PROVIDES > PROGRAM
FOR THE EDUCATION OF NINTH GRADE
STUDENTS IN GENERAL MATHEMATICS.

THE PURPOSE OF THE PROJECT IS (1) TO
WRITE UNITS OF WORK THAT INCORPORATE PRACTICAL APPLICATIONS FROM
THE EVENTS AND AFFAIRS OF URBAN THE EVENTS AND AFFAIRS OF URBAN LIFE. (2) TO SEEK OUT PROBLEMS FROM LOCAL INDUSTRY. AND (3) TO PROVIDE DIFFERENTIATED ACTIVITIES AND EXER-CISES THAT APPEAL TO THE INTERESTS AND ABILITIES OF THE VARIETY OF STU-DENTS THAT ARE FOUND IN NINTH GRADE GENERAL MATHEMATICS GRADE GENERAL MATHEMATICS CLASSES. TO ACCOMPLISH THESE OBJECTIVES, THE DIRECTOR AND THREE TEACHERS WORKED TOGETHER FOR SIX WEEKS, WRITING UNITS ON (1) CARPENTRY. (2) MATHEMATICS IN SPORTS. (3) SCIENCE, (4) WORLD OF WORK. (5) PRACTICAL NURSING. (6) BUSINESS EXPERIENCE, (7) GEOMETRY. (8) SETS AND PROBABILITY (9) A MODERN FACTORY. (10) TRAVEL AND (11) ALGEBRA. EACH STUDENT IS PROVIDED WITH SUFFICIENT BASIC MATERIALS FOR USE AS NEEDED. TEACHERS' COPIES OF THE PROGRAM PROVIDE MANY TEACHING SUGGESTIONS AND A NUMBER OF TRANSPARENCIES FOR USE WITH THE UNITS. MATERIALS WERE PROVIDED FOR FIVE EXPERIMENTAL CLASSES IDED FOR FIVE EXPERIMENTAL CLASSES AND ARE PRESENTLY IN USE. THE FIVE TEACHERS WHO ARE USING THE MATERI-ALS ARE MEETING PERIODICALLY DUR-ING THE SCHOOL YEAR TO EVALUATE AND PEWRITE THE UNITS AS NECESSARY (RP)

ED 017 461

ANDERSON, RICHARD D.
A CURRICULUM IN APPLIED MATHEMAT-

ICS. Committee on the Undergraduate Program in Mathematics, Berkeley, Calif.

Pub Date—JAN66 Note -32P. EDRS Price - MF01/PC02 Plus Postage.

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—\*College Mathematics. \*Curriculum.
\*Curriculum Development, Engineering. \*Mathematical Applications. \*Mathematics. Physical Sciences, Social Sciences, Undergraduate Study Identifiers—MATHEMATICAL ASSOCIATION OF AMERICA NATIONAL SCIENCE FOLUMENTON.

OF AMERICA FOUNDATION

REPORTED IS THE DEVELOPMENT OF REPORTED IS THE DEVELOPMENT OF UNDERGRADUATE MATHEMATICS COURSES PROPERLY REFLECTING THE MATHEMATICAL NEEDS OF STUDENTS IN THE RAPIDLY DEVELOPING ENGINEER-ING, PHYSICAL, AND SOCIAL SCIENCES. THE PURPOSE OF THIS UNDERGRADUATE PROGRAM IS TO PERMIT STUDENTS TO DEVELOP AND NURTICES INTERESTS IN APPLIED MATHEMAT! AT AN EARLY DEVELOP AND NURTY PE INTERESTS IN APPLIED MATHEMAT! AT AN EARLY STAGE SO THAT SIGNIF ANT INCREASES IN THE NUMBER AND QUALITY OF APPLIED MATHEMATICIANS WOULD RESULT. THE PROGRAM DESCRIBED IS PRE-GRADUATE, IN THE SENSE (HAT ITS GOAL IS TO PREPARE STUDENTS FOR GRADUATE WORK IN APPLIED MATHEMATICS PHILOSOPHY, CONTENT, AND IMPLEMENTATION OF THE PROGRAM

ARE PRESENTED IN THE MAIN BODY OF THE REPORT THIS DOCUMENT IS ALSO AVAILABLE WITHOUT CHARGE FROM CUPM CENTRAL OFFICE, P. O. BOX 1024, BERKELEY, CALIFORNIA 94701 (RP)

ED 016 623 RICHMOND, RUTH KUSSMANN

INSTRUCTIONAL GUIDE FOR BASIC MATHEMATICS I, GRADES 10 TO 12.

Los Angeles City Schools, Calif. Report No. X-58

Pub Date 66

Note 34P EDRS Price - MF01 PC02 Plus Postage.

Descriptors Arithmetic, Course Content, \*Curriculum Development, Geometry, Grade 10, Grade 11, Grade 12, Low Ability Students, \*Mathematics, \*Secondary School Mathematics, Slow Learners, Student Characteristics, "Teaching Guides

Identifiers CALIFORNIA, California (Los An-

THIS INSTRUCTIONAL GUIDE FOR MATHEMATICS I OUTLINES CONTENT AND PROVIDES TEACHING SUGGESTIONS FOR A FOUNDATION COURSE FOR THE SLOW LEARNER IN THE SENIOR HIGH SCHOOL. CONSIDERATION HAS BEEN GIVEN IN THE PREPARATION OF THIS DOCUMENT TO THE STUDENT'S INTEREST LEVELS AND HIS ABILITY TO LEARN. THE GUIDE'S PURPOSE IS TO ENABLE THE STL. DENTS TO UNDERSTAND AND APPLY THE FUNDAMENTAL MATHEMATICAL AL-GORITHMS AND TO ACHIEVE SUCCESS AND ENJOYMENT IN WORKING WITH MATHEMATICS. THE CONTENT OF EACH MATHEMATICS, THE CONTEST OF EACH UNIT INCLUDES (1) DEVELOPMENT OF THE UNIT, (2) SUGGESTED TEACHING PROCEDURES, AND (3) STUDENT EVALUATION THE MANOR POPULOS, OF THE TION THE MAJOR PORTION OF THE MATERIAL IS DEVOTED TO THE FUNDA-MENTAL OPERATIONS WITH WHOLE NUM-BERS, IDENTIFYING AND CLASSIFYING ELEMENTARY GEOMETR'C FIGURES ARE ALSO INCLUDED. (RP)

ED 016 622 RICHMOND, RUTH KUSSMANN INSTRUCTIONAL GUIDE FOR SENIOR MATHEMATICS

Los Angeles City 311 oots, Calif. Report No. SC-624 Pub Date 67 Note 43P

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Aigebra. Arithmetic. Curriculum Guides, General Education, Geometry, Grade 12, \*Mathematics, \*Secondary School Mathematics, \*Teaching Guides

SENIOR MATHEMATICS, WITH PRACTI-CAL EMPHASIS ON TOPICS FROM THE FIELDS OF ARITHMETIC, ALGEBRA, AND GEOMETRY, IS A ONE-SEMESTER COURSE FOR TWELFTH-GRADE STUDENTS. THE COURSE HAS TWO MAJOR OBJECTIVES (1) PREPARING THE STUDENT FOR EMPLOY-MENT BY IMPROVING HIS SKILLS IN THE BASIC PROCESSES OF MATHEMATICS, AND ABOUT TO ENCOUNTER ADULT RESPON-SIBILITIES WITH A PRACTICAL COURSE IN CONSUMER MATHEMATICS AND THE MATHEMATICS OF PERSONAL BUSINESS. THE PUBLICATION PROVIDES TEACHERS WITH (1) AN OUTLINE OF COURSE CON-TENT. (2) A LIST OF TOPICS TO BE EMPHA-SPECIFIC SIZED. (3) TEACHING SUGGESTIONS, AND (4) ILLUSTRATIVE EX-AMPLES. A SUGGESTED TIME SCHEDULE IS INCLUDED AS A MEANS OF INDICATING THE EMPHASIS RECOMMENDED FOR THE STUDY OF EACH UNIT, EVALUATION SEC-TIONS ACCOMPANYING EACH UNIT SERVE TO SUMMARIZE THE BASIC CON-CEPTS, SKILLS, AND UNDERSTANDINGS WHICH THE STUDENT SHOULD FAVE AC-QUIRED (RP)



#### GEOMETRY

1200 ED 183 407

Andersen. Lyle

Intuitive Geometry. Topical Module for Use in a

Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver. Colo.

Spons Agency—Na lonal Science Foundation, Washington, D.C. Pub Date -- 73 Grant -- NSF-GW-7720

Note-39p.; For related documents, see SE 030 304-322

904-322
Pub Type-- Guides - Classroom - Learner (051) - Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors -- Activities, "Geometric Concepts, Geometry, "Learning Laboratories, Manipulative Materials, Mathematical Enrichment, Mathematics Curriculum, "Mathematics Instruction, Puzzles, Secondary Education, "Secondary School Mathematics, Worksheets
This module utilizes hole nunching with a people

This module utilizes hole punching with a pencil, paper folding, rubber band stretching, and unique board models to "picture" key geometric concepts in an intuitive manner. The module is virtually self-contained, except for common classroom items which are scissors and a protractor. The introduc-tory lesson allows for a va. ety of approaches for the student to take as he, she experiments and looks for solutions to divergent questions. The five experiments involve inexpensive models which help the student build up a concept of key geometric ideas in a very concrete way. The module contains five en-richment cards, which involve students in problem situations that require the use of at least some of the geometric concepts stressed in the module. (Au-

ED 180 754 Math 1813 (PIPI): Analytic Geometry.

Oklahoma State Univ., Stillwater, Coll. of Engineer-

Spons Agency—National Science Foundation,
Washington, D.C.
Pub Date—[71]
Grant—NSF-GY-9310

Note-287p.: For related document, see SE 029

Pub Type— Guides - Classroom - Learner (051) FDES Price - MF01/PC12 Plus Postage.

Proce - MFU1/PC12 Plus Postage.

Descriptors—Analytic Geometry. Audiovisual Aids, College Curriculum, \*College Mathematics, Competency Based Education, \*Higher Education, \*Mastery Learning, \*Mathematics Curriculum. Mathematics Instruction, Problems. \*Programed Instruction, Programed Instructional Materials, Self Evaluation, \*Study Guides, Transformations (Mathematics), Trigonometry Identifiers—Conics (Mathematics), Parameters

Identifiers-Conics (Mathematics). Parameters (Mathematics)

This study guide, designed for use at Oklahoma State University, contains lists of activities for stu-dents to perform based on the "mastery of learning" concept. The activities include readings, problems. self evaluations, and assessment tasks. The units included are: Lines in a Plane, Conics, Transformations, Polar Coordinates, 3-Dimensional Analytics, and Parameters. (MK)

ED 173 150

Allen, Frank B. And Others

Mathematics for High School, Geometry (Part 2). Commentary For Teachers. Preliminary Edition. Stanford Univ., Calif. School Mathematics Study

Spons Agency—National Science Foundation, Washington, D.C. Pub Date—60

Note = 348p.: For related document, see ED 135 624: Contains occasional light and broken type ub Type Guides - Classroom - Teacher (052)

Pub type Guides - Classroom - teacher 1052; EDRS Price - MF01/PC14 Plas Postage. Descriptors—\*Analytic Geometry, Curriculum. \*Curriculum Guides, \*Geometry, \*Instruction, Mathematics Education. Secondary Education. "Secondary School Mathematics
Identifiers—"Area, "School Mathematics Study

Group

This is part two of a two-part manual for teachers using SMSG high school text materials. The manual contains a chapter-by-chapter commentary on the text, solutions to the problems in the text, and a collection of essays on topics related to material in the text. Chapter topics include: (1) perpendicular lines and planes in space; (2) parallel lines in a plane; (3) parallel lines in space; (4) areas of polygonal

regions: (5) similarity, (6) circles and spheres, (7) loci and constructions, (8) the area of a circle and related topics, and (9) plane coordinate geometry

1203 ED 173 139 Junior High School Mathematics Units, Volume II, Geometry, Commentary for Teachers, Stanford Univ., Calif. School, Mathematics, Study

Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 59
Note:--107p.; For related documents, see SE 027
971-973; Contains occasional light and broken

type
Pub Type... Guides - Classroom - Teacher (052)
EDRS Price - MF01. PC05 Plus Postage.
Descriptors - Curriculum, "Curriculum: Guides,
"Geometry, "Instruction, Junior High Schools,
Mathematics Education, "Measurement, Securiary Education, "Secondary School Mathematics
Identifiers... "Estimation (Mathematics), "School

Mathematics Study Group
This is volume two of a three-volume set for
teachers using SMSG junior high school text
materials. Each unit contains a commentary on the text, answers to all the exercises, a copy of the questionnaire used for evaluating the material, and a summary of comments by the teachers using the text. Unit topics include: (1) non-metric geometry; (2) informal geometry: and (3) measurement and approximation. (MP)

ED 173 108 Junior High School Mathematics Units. Volume II, Geometry. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency-National Science Foundation. Washington, D.C. Pub Date--59 Note-106p.; For related documents, see SE 027 914-916

Type- Guides - Classroom - Learner (051)

Pub Type— Godes - Classroom - Learner (051)
EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Curriculum. "Geometry. "Instruction. Junior High Schools, Mathematics Education. "Measurement. Secondary Education. "Secondary School Mathematics, "Textbooks Identifiers—"Estimation (Mathematics), "School Mathematics Study Group
This is register to the factors and the SMOO.

This is volume two of a three-volume SMSG junior high school mathematics text. This volume contains the units concerned with geometry. Unit topics include: (1) non-metric geometry; (2) informal geometry; and (3) measurement and approximation. (MP)

1205 ED 162 871

Anderson, R. D. And Others

Studies in Mathematics, Volume VII: Intuitive Geometry, Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation,
Washington, D.C.

Pub Date—61 Note—229p.: For related documents, see SE 025 372-375 and ED 143 544-557; Not available in hard copy due to marginal legibility of original document

Pub Type-- Books (010) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Curriculum, Elementary Education,
"Elementary School Mathematics, "Geometry,
"Inservice Teacher Education, "Instructional
Materials, Mathematics Education, "Teaching
Guides, "Textbooks
Identifiers—"School Mathematics Study Group
This is a SMSG approach; text for planearing

This is a SMSG geometry text for elementary teachers. This volume as been prepared to help elementary teachers develop a sufficient subject matter competence in the mathematics of the ele-mentary school program. The editors feel that elementary teachers need a thorough discussion of all the materials they might teach in grades 4, 5, and 6, from a higher point of view, but presented in much the same way they would present it. The content is the same as the 7th and 8th grade SMSG course of study, but carefully edited and presented in a manner compatible with its purpose. Chapter topics include: (1) non-metric geometry; (2) measurement (3) parallelograms and triangles; (4) constructions and congruent triangles; (5) similar triangles and variation; (6) volumes and surface areas; (7) circles

and spheres, and (8) relative error (MP)

1206
Allen, France And Others
Geometry And Confinates, Teacher's Commentary, Part II, 1 set 50, Revised Edition,
Second Univ. Co. Second Mathematics Study

Spons Agency S Washington, D C National Science Localitation Pub Date 65

Note: 314pt, For related documents, see \$1,025 101-103

Pub Type Guides - General (050)

Pub Type: Guides - General (080) EDRS Price - MF01 PC13 Plus Postage. Descriptors: "Analytic Geometry, Curriculum, "Geometry, "Instruction, Mathematics Educa-tion, Secondary Education, "Secondary School Mathematics," Teaching Guides Identifiers: "School Mathematics Study Group Thus, part theory."

This is part two of a two-part manual for teachers using SMSG high school text materials. The commentary is organized into four parts. The list part contains an introduction and a short section on estimates of class time needed to cover each chapter The second or main part consists of a chapter-bychapter commentary on the text. The third part is a collection of essays on topics that cannot conveniently be dealt with in the main part of the consumitary in connection with a particular pass ge. The tary in connection with a particular pass ge. The fourth part contains answers to Illustrative Test Items and the solutions to the problems. Chapter topics include, coordinates in a plane, perpendicularity, parallelism, and coordinates in space, directed segments and vectors, polygons and polyhedrons, and circles and spheres (MN)

ED 160 454

Haag, V. H. And Others

Geometry with Coordinates, Teacher's Commentary, Part I, Unit 49. Revised Edition.

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C

Pub Date - 65 Note-- 448p.; For related documents, see SE 025 101-104

Pub Type - Guides - General (050)

Pub Type - Guides - General (1920)

EDRS Price - MF01 - PC18 Plus Postage.

Descriptors \*Analytic Geometry, Curriculum,
 \*Geometry, \*Inscruction, Mathematics Education, Secondary Education, \*Secondary School
Mathematics, \*Teaching Guides

Identifiers \*School Mathematics Study Group

This is part are of a transport inspect for teachers

This is part one of a two-part manual for teachers using SMSG high school text materials. The commentary is organized into four parts. The first part contains an introduction and a short section on estimates of class time needed to cover each chapter The second or main part consists of a chapter-by-chapter commentary on the text. The third part is a collection of essays on topics that cannot conventently be dealt with in the main part of the commentary in connection with a particular passage. The fourth part contains answers to Illustrative Text Items and the solutions to the problems. Chapter topeis include: introduction to formal geometry; sets, points, lines, and planes; distance and coordinate systems, angles; congruence, parallelism; and similarity. (MN)

1208 ED 160 453 Allen, Frank B. And Others

Geometry with Coordinates, Student's Text. Part II. Unit 48. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation
Washington D C
Pub Date 52

Pub Date Stap, For related documents, see SE 025 101-104 Pub Type Books (010)

Published Books (010)
EDRS Price - MF02 PC21 Plus Postage.
Describers "Analytic Geometry, Curriculum,
"G. ometry, "Instructional Materials, Mathematics inducation, Secondary Education, "Secondar, School Mathematics, "Textbooks Identifiers "School Mathematics Study Group This is part two of a two-part SMSG geometry,"

text for high school students. One of the goals of

text is the development of analytic geometry hand-in-hand with synthetic geometry. The authors em-phasize that both are deductive systems and that it is useful to have more than one mode of attack in solving problems. The text begins the development

of geometry synthetically and teaches the method of synthetic proof, then leads quickly to the use of coordinate systems in the remainder of the work Chapter topics include: coordinates in a plane; perpendicularity, parallelism, and coordinates in space; directed segments and vectors, polygons and polyhedrons; and circles and spheres. (MN)

FD 160 452

Allen, Frank B. And Others Geometry with Coordinates, Student's Text, Part 1, Unit 47. Revised Edition.

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date =63 Note =514p. For related documents, see SE 025 102-104

Pub Type-- Books (010)

EDRS Price - MF02/PC21 Plus Postage Descriptors—\*Analytic Geometry, Curriculum, 'Geometry, \*Instructional Materials, Mathemat-

es Education, Secondary Education, \*Secondary School Mathematics, \*Textbooks Identifiers - \*School Mathematics Study Group This is part one of a two-part SMSG geometry text for high school students. One of the goals of the text is the development of analytic geometry hand-in-hand with synthetic geometry. The authors emphasize that both are deductive systems and that it is useful to have more than one mode of attack in solving problems. The text begins the development of geometry synthetically and teaches the method of synthetic proof, then leads quickly to the use of coordinate systems in the remainder of the work. Chapter topics include: introduction to formal geometry, sets, points, lines, and planes, distance and coordinate systems; angles; congruence; parallelism; and similarity. (MN)

ED 148 577

Geissler, Dennis Larson, Richard Individualized Geometry: A Geometry Unit for the Intermediate Grades.

Wisconsin Univ., Eau Claire. Pub Date - 77

Note = 161p.; For related documents, see SE 023 286-291; Not available in hard copy due to copyright restrictions; Contains occasional colored

pages which may not reproduce well Available from -Dr. Juanita Sorenson, University of Wisconsin-Eau Claire, Library 1109, Eau Chire, Wisconsin 54701 (\$6.00)

Pub Type - Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Availa-1109, Eau

ble from EDRS.

Descriptors—Curriculum, Elementary Education, \*Elementary School Mathematics, \*Experiential Learning, \*Geometric Concepts, \*Individualized Instruction, \*Instructional Materials, mediate Grades, Teacher Education, Units of Study Identifiers - Individually Guided Education, Wis-

This geometry unit for the intermediate grades is based on the Holt Mathematics Series (levels 3-6). using the concepts of Individually Guided Education (IGE). It is divided into seven levels, one for grade 3 and two each for grades 4-6. Each is designed for both individual and group learning. A vocabulary list is used as a key for activities, a varnety of worksheets is included, plus an evaluation sheet for each level. Objectives are specified. (MS)

ED 143 547

Anderson, Richard D. Studies in Mathematics, Volume V. Concepts of Informs Geometry, Preliminary Edition, Stanford Univ. Calif. School Mathematics Study

Group

Spons Agency N Washington, D.C. National Science Foundation.

6.0 Pub Date

280p., For related documents, see SE 023

Books (010)

EDRS Price - MF01 PC12 Plus Postage. Descriptors - Elementary School Mathematics.

\*Geometry, \*Instructional Materials, Junior High Schools, Mathematics, \*Secondary School Mathematics, Tencher Education, \*Textbooks Identifiers - \*School Mathematics Study Group

The main purpose of this book is to provide background material in geometry for teachers or prospective teachers who know little or no geometry. It should be suitable as a text for a one-semester

irrse for teachers of junior high school or upper

elementary school students. Chapters contain developmental material and exercises. Chapters include (1) Introduction; (2) Sets, (3) Logic and Geometry (4) Abstractions and Representations, (5) Non-Metric Geometry; (6) Measurement, (7) Accuracy and Precision; (8) Congruence, (9) Parallels and Metric Properties of Triangles, (10) Areas, Volumes, and the Theorem of Pythagoras, (11) Cir-cles, Cylinders, and Cones; (12) The Coordinate Plane and Graphs; (13) The Sphere; and (14) Non-Metric Polyhedrons (RH)

ED 143 546 1212

Kutuzov. B. V. Studies in Mathematics Volume IV. Geometry. Stanford Univ., Calif. School Mathematics Study

Spons Agency - National Science Foundation, Washington, D.C.

Pub Date -- 60 Note -- 582p.; For related documents see SE 023 028-041; Contains occasional light and broken

Pub Type - Books (C10)

Pub Type: - Books (C10)

EDRS Price - MF03/PC24 Plus Poytage.

Descriptors - Calculus, College Mathematics,

"Geometry, Instructional Materials, Mathematics, Reference Materials, Secondary School Mathematics, "Textbooks"

Identifiers-School Mathematics Study Group This book is a translation of a Russian text. The translation is exact, and the language used by the author has not been brought up to date. The volume is probably most useful as a source of supplementary materials for high school mathematics. It is also useful for teachers to broaden their mathematical background. Chapters included in the text are: (1) Geometric Figures as Point Sets; (2) Geometric Constructions; (3) The Transformation of Figures, (4) Parallel Translations; (5) Rotation; (6) Symmetry; (7) Similarity; (8) Inversion; (9) The General Problem of Measuring Lengths, Areas, and Volumes; (10) Euclid's "Elements"; (11) The Geometry of Lobachevskii; (12) The Axiomatic Structure of Geometry; and (13) The Idea of an Interpretation of a Geometric System A selected bibliography is included. (RH)

ED 143 544

Curtis, Charles W. And Others

Studies in Mathematics, Volume II. Euclidean Geometry Based on Ruler and Protractor Axioms. Second Revised Edition. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency-National Science Foundation, Vashington, D.C. Pub Date--61

Note-185p.; For related documents, see SE 025 029-041 Pub Type- Books (010)

Pub Type—Books (010)
EDRS Price - MF01/PC08 Plus Postage.
Descriptors—"Geometry, Inservice Education,
"Instructional Materials, "Resource Materials,
Secondary Education, "Secondary School Mathematics, Teacher Education, "Teaching Gur les
Identifiers—"School Mathematics Study Gr p
These materials were developed to help high

school teachers to become familiar with the approach to tenth-grade Euclidean geometry which was adopted by the School Mathematics Study Group (SMSG). It is emphasized that the materials are unsuitable as a high school textbook. Each document contains material too difficult for most high school students. It is assumed that teachers who study the notes have good backgrounds in axiomatic geometry. In particular, some familiarity with Euchid's Elements is presupposed. Chapters include:
(1) Historical Introduction: (2) Logic: (3) Points,
Lines, and Planes; (4) Real Numbers and the Ruler
Axiom; (5) Separation in Planes and in Space; (6)
Angles and the Protractor Postulates; (7) Congruence; (8) Parallelism; (9) Area; and (10) Circles and Spheres (Author/RH)

ED 143 513 Ayre, H. Glenn And Others

Analytic Geometry, Teacher's Commentary, Unit

No. 65. Revised Edition. Stanford Univ., Calif. School Mathematics Study

Group
Spons Age 5 5
Washingt D4
Pub Date 65 School Scotte Foundation.

iote 490p For 989: Not availab Text. see SE 1922 fue to mare nallegibility of one

Pub Type Guides - General (080)

EDRS Price - MF02 Plus Postage, PC Not Available from EDRS.

Descriptors Algebra, \*Analytic Geometry, Georescriptors Algebra, "Analysis sociological metric Concepts, "Instructional Materials, Mathematics Education, "Se onday Education "To share ematics Education, "Se ordary Education," "Secondary School Mathematics, "Teaching Condes

This is the teacher's ginde to the SMSO text ANALY FIC GEOMETRY. The text is designed to be used as a one-semester course for 12th grade

students, Included in this guide ite (1) suggested length of study for each chapter, (2) discussion of each chapter that is in the student text, (3) comments keyed to the pages of the student's text to provide explanation and background for the teacher, (4) is swers to exercises and (5) discussion of supplementary materials in the fest (RH)

1215 ED 143 512

Ayre, H. Glenn and Others Analytic Geometry, Student's Text, Unit No. 64. Revised Edition.

Stanford Univ., Calif. School Mathematics Stativ Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 65 Note: 574p., For related Feacher's Commentary, see SE 022-990, Contains occasional light and broken type

Pub Type Guides - General (050)

EDRS Price - MF02 PC25 Ptu Postage.

Descriptors Algebra, \*Analytic Geometry, Geometric Concepts, \*Instructional daterials, Mathematics Education, \*Secondary Education, \*Secondary School Mathematics, \*Textbooks Identifiers \*School Mathematics Study Group

This text provides a one-semester study of analytic geometry for secondary school students. It is designed for use at the 12th grade level. A deliberate effort was made to tie this text to previous SMSG texts; 'he usual language of sets, ordered pairs, num-ber properties, etc. are included. This flavor is what distinguishes this book from others in the field. Ten chapters included in the book are (1) Analytic Geometry; (2) Coordinates and the Line; (3) Vectors and their Applications; (4) Proofs by Analytic Methods; (5) Graphs and their Equations, (6) Curve Sketching and Locus Problems. (7) Come Sections. (8) The Line and the Plane in 3-Space (9) Quadric Surfaces: and (10) Geometric Transformations Also included are an index and a section of supplements to the various chapters. (RH)

ED 138 478

Scott, Joseph 4.

Lessons on Selected Geometry Concepts Written in Expository and Discovery Modes of Presentation and a Test of Concept Mastery. Practical Paper No. 13.

Wisconsin Univ., Mindison. Research and Development Center for Cognitive Learning

Spons Agency Office of Education (DHEW), Washington, D.C. Pub Date, Sep. 72

Pub Date | Nep 72 | Contract | OEC-5-10-154 | Note | 215p; Report from the Conditions of Learning and Instruction Component of Program 1. Contains occasional light and broken type

Pub Type Guides - General (050)

Pub Type Guides - General (050)
EDRS Price - MF01 PC09 Plus Postage.
Descriptors Curriculum, Educational Research,
\*Elementary School Mathematics, Elementary
Secondary Education, \*Geometric Concepts, Instruction, \*Instructional Materials, Learning Activities, Mathematics Education, \*To iching

Methods, \*Tests, Units of Study

The lessons and test which comprise this document were used in two experiments concerning the tation on retention and transfer. The methodology and results of the experiments are briefly summarized. Eight lessons are included. (1) two introductory lessons, (2) three lessons in the expositors mode, one on triangles and two on quadrilaterals. and (3) three lessons in the discovery mode, one on triangles and two on quedrilaterals. Also included is a 28-item inuitiple-choice test de i mg with concepts presented in the lessons on quadriaterals. (Author DT)

Allen, Frank B. And Others

Geometry, Teacher's Commentary, Part II, Unit 16. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 65

Note: -361p., For related documents, see SE 021 987-022 002 and ED 130 870 577; Contains occasions sional marginal legibility.

Pub Type Guices - Genero, (050)
EDRS Price - MF01/PC15 Pirs Postage.
Descriptors—\*Curriculum, Elementary Secondary Education, \*Geometry, \*Instruction, Mathematies Education, \*Secondary School Mathematics, "Teaching Guides Identifiers -- School Mathematics Study Group

This sixteenth unit in the SMSG secondary school mathematics somes in the teacher's commentary for Unit 14. For each of the chapters in Unit 14, a guide to the selection of problems is provided, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, the answers to exercises are listed, and sample test questions for that chapter are included. A final section, labelled "Talks to Teachers," discusses facts and theories, equality, congruence, and equivalence; the concept of congruence; introduction to non-Euclidean geometry, miniature geometries; and area. (DT)

ED 135 623

Allen, Frank B. And Others

Geometry, Teacher's Commentary, Part 7, Unit 15. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-65

Note-267p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occasional light and broked type

Pub Type-Guides - General (050)

EDRS Price - MF01/PC11 Plus Postage.
Descriptors—\*Curriculum, Elementary Secondary Education, \*Geometry, \*Instruction, Mathematics Education, \*Secondary School Mathematics, \*Teaching Guides identifiers - \*School Mathematics Study Group

This fifteenth unit in the SMSG secondary school mathematics series is the teacher's commentary for Unit 13. A time allotment for each of the chapters in Units 13 and 14 is suggested. Then, for each of the chapters in Unit 13, a guide for the selection of problems is provided, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, and the answers to exercises are listed. For each of the chapters except the first, tample test questions are included. (DT)

ED 135 622

Allen, Frank B. And Others

Geometry, Student's Text, Part II, Unit 14. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C.

Put Date-61

Note-395p.; For related documents, see SE 02! 987-022 002 and ED 130 870-877

Pub Type - Books (010)

EDRS Price - MF01 PC16 Plus Postage.
Descriptors—\*Curriculum. Elementary Secondary Education, \*Geometry, Instruction, \*Instructional Materials, Mathematics Education, \*Secondary School Mathematics, \*Textbooks

Identifiers- \*School Mathematics Study Group

Unit 14 in the SMSG secondary school mathematics series is a student text covering the following topics in geometry; areas of polygonal regions. similarity, circles and spheres, characterization of sets, constructions, areas of circles and sectors, volumes of solids, and plane coordinate geometry. Appendices cover Eratosthenes' measurement of the earth, rigid motions, proof of the two-circle theorem, trigonometry, and regular polyhedra (DT)

1220

ED 135 621

Allen, Frank B. And Otners Geometry, Student's Text, Part I, Unit 13. Revised

Edition. Stanford Univ., Calif. School, Mathematics, Study

Group Spons Agency N Washington, D C National Science Foundation,

Pub Date: 65
Note: 378p; For related documents, see NF 021
987-022 002 and ED 130 870-877; Contains occasions sional light and broken type

Books (010)

Pub Type Books (010)
EDRS Price - MF01/PC16 Plus Postage.
Descriptors "Curriculum, Elementary Secondary
Education, "Geometry, Instruction, "Instructional Materials, Mathematics Education, "Secondary School Mathematics, "Texthooks
Identifiers "School Mathematics Study Group
Unit 13 in the SMSG secondary school matis-

ematics series is a student text covering the following too is in geometry common sense and organized knowledge, sets, real numbers, and lines; lines, planes, and separation, angles and triangles, congruences, proof, geometric inequalities, perpendicular lines and planes in space; parallel lines in a plane; and parallels in space. Appendices cover symbols, postulates of addition and multiplication, rational and irrational numbers, square roots, how to draw figures in 3-space, and proof of theorems on perpendicularity. (DT)

ED 127 190

Sohre, Beverly, Ed.

Parts and Pieces: MINNEMAST Coordinated

Mathematics - Science Series, Unit 22. Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spons Agency-National Science Foundation, Washington, D.C. Pub Date 70 Note-138p.; For related documents, see

For related documents, see SE021201-234; Photographs may not reproduce well

Available from MINNEMAST, Minnemath Cer ter, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type -- Guides - General (050)

Pub Type -- Guides - General (U20)
EDRS Price - MF01 PC00 Plus Postage.
Descriptors -- Curriculum Guides, Elementary
Education, Eler. mary School Mathematics.
Elementary Scho. Science, Experimental Curriculum, Fractions, Interdisciplinary Approach, Activities Mathematics, Education Learning Activities, Mathematics Education, Measurement, Primary Education, Process Edu-

cation, Science Education, Unit Study Identifiers—\*MINNEMAST, \*M. Lesota Mathematics and Science Teaching Project

he is the twenty-second in a series of 29 coordin. MINNEMAST units in mathematics and some for kindergarten and the primary grades. Intended for use by second-grade teachers. and so-c this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of seven groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud. and other instructional materials are included in the book. The distinction between counting measure and measure of amount is introduced in the first lesson. Subsequent lessons deal with the use of fractions in the measurement of weight, length, Mag of angles, time and area. In the final section, rules for calculation with fractions are developed. (SD)

ED 127 189

Biersteker, Joseph And Others Angles and Space: MINNEMAST Coordinated Mathematics - Science Series, Unit 21. Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center.

Spons Agency—National Science Foundation,
Washington, D.C.

Pub Date 1: Note-1697 For related documents, SE021201-234; Photographs may not reproduce well

Available from "MINNEMAST, Minnemath Con 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type - Guides - General (050)

EDRS Price - MF01 PC07 Plus Postage.

Descriptors "Curriculum Gordes, Elementary Education, "Elementary School Mathematics, \*Elementary School Science, Experimental Curmedium, \*Geometric Concepts (occumetry, \*to terdisciplinary Approch, Learning Activities Mathematics Education, Procint Education Process Education, Science Established, Units of Study

Identifiers \*MINNI MAST, \*Minnesota Mathematics and Science Teaching Project

This volume is the twenty first in a correst of coordinated MINNEM and some in mathema and science for kindergarten and the pring grades Intended for use by second-grade (eac) is this unit guide provides a submary and overview of the unit, a list of materials needed, and descript ons of three groups of lessons. The purposes and procesdures for each activity are discussed. Examples of questions and discussion topics are given, and an several cases ditto masters, stories for reading aloud and other instructional materials we included in the book. The first section of this unit is concerned with angles and their measurement. The unit or measurement used is called a Mag at duratics the measured with a special circular promactor. The other sections deal with polygons and polyhedra (SD)

1223

Blair, Kay W. Forseth, Sonia D. Exploring Symmetrical Patterns: MINNEMAST Coordinated Mathematics - Science Series, Unit 14

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spons Agency National Science Foundation,
Washington, D.C.
Pub Date: 71

Pub Date

ote 115p. For rela SE021201-234, Photograp. Note documents hay not reproduce well; Colored transparencies removed from document due to poor reproducibilité Available troin MINNEMAST, Minnemath Cen

ter, 72 55414 Washington Ave. S.E., Minneapolis, MN

ub Type Guides - General (1)5(1)

EDRS Price - MF01 PC05 Plus Postage.

Descriptors \*Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Elementary School Science, Experimental Cur-neulum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, \*Symmetry, Units of Study Identifiers \*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project

This volume is the fourteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of lessons and activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given. and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit continues the study of symmetry begun in Unit 7 of this series. The five sections are devoted to: (1) rotational symmetry, (2) repeating patterns and translational symmetry, (3) bilateral symmetry, (4) symmetry in sound and movement, and (5) other interesting patterns, (SD)

ED 127 178

Kraby, James Rieff, Mar of Describing Locations: (INNEMAST Coordinated Mathematics - Science Series, Unit 10. Minnesota Univ. Minneapolis Minnesota School Mathematics and Science Center

Spons Agency N Washington, D.C. Pub Date 71 Note 100p., For National Science Foundation,

For related documents, SE021201-234, Photographs may not rept sduce well

Available from MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minnemath Cen-ter, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type Guides - Ger (2) (050) EDRS Price - MF01 Pf 4 Plus Postage Descriptors \*Curriculu raises, liler Flacanon, \*Elements by of Mathe had Mathematics \*Elementary School Seic ... Experimental Curriculum, \*Geometric Concepts, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education Process Education, Science Education, Units of Study Identifiers \*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project



This volume is the tenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and inscriptions of two groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This volume introduces the basic geometric notion of linearity, and provides activities related to tue use of properties of lines in determining positions of objects. Lessons are organized into two sections. (1) lines, direction and location, and (2) locations and maps. A master for a "take-home fun activity" related to location of places on a map is also included. (SD)

ED 127 175

Blair, Kay W. Forseth, Sonia D.

Introducing Symmetry: MINNEMAST Coordinated Mathematics - Science Series, Unit 7. Minnesota Univ., Minneapolis. Minnesota School

Mathematics and Science Center.

Spons Agency-National Science Foundation,
Washington, D.C.

Pub Date-71

Note—83p.; For related documents, see SE021201-234; Photographs may not reproduce well; Transparencies in this document removed due to poor reproducibility
Available from—MINNEMAST, Minnemath Cen-

ter, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors— \*\*Curriculum Guides, Elementary Education, \*\*Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach. Learning Activities, Mathematics Education, Primary Education, P cation, Process Education, Science Education, \*Symmetry, Units of Study Identifiers—\*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project
This volume is the seventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit. a list of materials needed, and scriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The sections of this unit concern: (1) rotational symmetry, (2) repeating patterns, (3) bilateral symmetry; and (4) symmetry in sound and movement. A bibliography of books related to symmetry is provided for the teacher. (SD)

1227 ED 123 096

Transformations 1, Pupils' Pamphlet. iniversity of the South Pacific, Suva (Fiji).

Pub Date—[76] Note—32p.; Trial material prepared by UNDP Cur-

riculum Development Unit

riculum Development Unit
Pub Type— Books (010)
EDRS Price - MF91/PC02 Plus Postage.
Descriptors—"Geometric Concepts.
"Learning Activities, Mathematics deucation,
"Pattern Recognition, Secondary Education,
"Secondary School Mathematics, "Transformations (Mathematics), Worksheets

This pamphlet introduces the student to the basic ideas and procedures of transformational geometry through a series of worksheets. After developing intuitively the idea of rigid motion, vector diagrams are introduced, and translations are discussed in some detail. (SD)

1228 ED 123 071

Cosler, Norma, Ed.

Individualized Math Problems in Geometry, Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon

State Dept. of Education, Salem Career and Vocational Education Section Pub Date - 74

Note-105p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publica-tions, P.O. Box 1491, Portland, Oregon 97207 Pub Type - Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors: \*Geometry: Individualized Instruc-tion, \*Instructional Materials, Mathematical Ap-plications, Mathematics Education, Measurement, \*Problem Sets, Secondary Educa-\*Secondary School Mathematics. tional Education

:: Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. The volume contains problems in applied geometry. Measurement of perimeters, areas, and volumes, as well as angle measurmeent and the use of the Pythagorean Theorem, form the basis for most of the problems included. Problems are drawn from eleven vocastional areas: fire and police science, aviation mechanics, industrial mechanics, forest products, automechanics, electronics, drafting, machine tools, food processing, forestry, and agriculture. (SD)

FD 115 939

Wennetter, Magnus J.

Polyhedron Models for the Classroom, Second Edition.

National Council of Teachers of Mathematics, Inc., Reston, Va. Pub Date -- 75

Note—64p.: For an earlier edition, see ED 038 271 Available from—National Council of Teachers of Mathematics, 1906 Association Drive, Reston. Virginia 22091 (\$1.40, discounts on quantity orders)

Pub Type-- Books (010) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors---College Mathematics, Construction (Process), \*Experiential Learning, Geometric Concepts, \*Geometry, \*Instructional Materials, Mathematical Enrichment, \*Mathematical Models, Mathematics Materials, Secondary Educa-tion, \*Secondary School Mathematics Identifiers—National Council of Teachers of Math-

ematics. \*Polyhedrons

This second edition explains the historical background and techniques for constructing various types of polyhedra. Seven center-fold sheets are included, containing full-scale drawings from which nets or templates may be made to construct the models shown and described in the text. Details are provided for construction of the five Platonic solids. the thirteen Archimedean solids, stellations or compounds, and other miscellaneous polyhedra. The models may be used to illustrate the ideas of symmetry, reflection rotation, and translation. In-cluded is a bibliography of related sources. (Author JBW)

ED 113 192 Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 3. Geometry. Experimental Edition.

New York State Education Dept., Albany, Bureau of Elementary Curriculum Development.

Spons Agency - Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Div. of Compensatory Education. Pub Date-7

Note -28p.; Related documents are SE 019 740-743

Pub Type - Guides - General (056

EDRS Price - MF01/PC02 Plus Postage,
Descriptors - Elementary Education, \*Elementary
School Mathematics, \*Geometric Concepts,
Cometry, Guides, Instructional Materials,
\*Laboratory Manuals, \*Manipulative Materials,
\*Mathematics Materials,
\*Tankharter Ma Mathematics Materials, Teacher Developed Materials, \*Teaching Guides Identifiers—Elementary Secondary Education Act

Title I

This guide describes activities and materials which can be used in a mathematics laboratory aprepach to a basic mathematics program for grades .-6. Thirty-five activities pertaining to geometric concepts are described in terms of purpose, suggested grade levels, materials needed, and procedures. Some concepts included in the guide are basic shapes, set classification, similarities, differences, symmetry, congruency, puzzle recreations. special properties of geometric figures, conservation, recognition of geometric shapes, geometric solids, geometric problem solving, geometric tool

use (protractor, compass, ruler), pattern discoveries measurements with polygons, vocabulary, relationships between area and voiume, estimation, volume, fractional parts, and globe activities. The guide concludes with a list of selected manipulative materials for mathematics laboratory use (JBW).

1231 ED 113 165 Shan, Sair Ali

Topological Equivalence of Objects, Teacher's Guide for Use with Stretching and Bending Working Paper No. 18a.

Georgia Univ., Athens. Research and Development Center in Educational Stimulation

Spons Agency Office of Education (DHFW), Washington, D.C. Cooperative Research Pro-21312

Report No.: Center No-5-0250, WP Au-

Pub Date Oct 69

Contract OEC-6-10-061

Note 22p

Pub Type Guides - General (080)

EDRS Price - MF01 PC01 Plus Postage.
Descriptors Curriculum, Elementary Education,

\*Elementary School Mathematics, Experiential Learning, "Experimental Carrie flum, Learning, "Mathematical Concepts, "Mathematics Education, Primary Education, Topology

The notions of topological equivalence for onetwo-, and three-dimensional figures, as well as for graphs and networks, are developed for classroom use with children between the ages of three and ten Properties of open and closed curves are also exammed. This manual, addressed to the teacher, describes several activities related to each concept to be introduced. In order to implement this material, the teacher would need plastic clay, colored beads, and wire or pipe cleaners for each student (SD).

ED 113 164

Bending and Stretching.

Georgia Univ., Athens. Research and Developme: t Center in Educational Stimulation

Pub Date- [69]

Note 21p.

Pub Type Guides - General (050)

Pub Type Guides - General (050)

EDRS Price - MF01 PC01 Ptus Postage.

Descriptors \*Discovery Learning, Elementary

Education, \*Elementary School Mathematics,

\*Mathematical Concepts, Mathematics Education, Networks, Pattern Recognition, Serial Ordering, \*Topology, \*Workbooks

This 19-more workbook progents, the elementary

This 19-page workbook presents the elementary student with topological concepts through sequences of pictures with related questions. Generally the questions ask, "How are the pictures different?" and "How are they the same." Several topological concepts are presented in this manner connectivity, number of holes, closed and open curves, networks, and serial index (8D)

ED 108 963

Olson, Alton I

Mathematics Through Paper Folding.

National Council of Teachers of Muthematics, Inc., Washington, D.C.

Pub Date 75

Note 66p., See ED 077 711 for earlier edition Available from National Council of Teachers of Mather S. Inc., 1906 Association Drive, Reston, Virginia 22091

Pub Type Books (610)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS,

Descriptors Experiential Learning, \*Geometric Concepts, \*Instruction, \*Laboratory Procedures. \*Manipulative Materials, Mathematical Enrichment, Mathematics E Jucation, Secondary Educa-tion, \*Secondary School Mathematics

This booklet is a revised edition of Donovan Johnson's "Paper Folding for the Mathematics Class" (ED 077-71). It begins with directions for folding basic constructions such as as a straight line, the line perpendicular to a given line passing through a given point, and the bisector of an angle Subsequent hapters cover concepts related to reflections, circle relationships, star and polygon constructions, symmetry, conic sections, algebra by paper folding, polygons constructed by typing paper knots, and recreations such as the Mobius strip and pop-up dodecahedra. Appendices list theorems that can be demonstrated by paper folding and display largescale figures related to some constructions. (SD)



ED 100 701 Independent Study Project, Topic: Topology. Notre Dame High School, Easton, Pa. Pub Date-74 Note -- 24p.

Pub Type Guides - General (050) EDRS Price - MF01/PC01 Plus Postage

Descriptors—Enrichment, Experiential Learning, Independent Study. \*Individualized Instruction, Mathematical Concepts, \*Mathematical Enrichment. \*Secondary School Mathematics. Teacher Developed Materials. \*Topology. \*Worksheets Using this guide and the four popular books noted in it, a student, working independently, will learn about some of the classical ideas and problems of topology: the Meobius strip and Klein bottle, the four color problem, genus of a surface, networks. Euler's formula, and the Jordan Curve Theorem. The unit culminates in a project of the students' choosing; recommended projects are designed to be shared with others and could be placed in a mathematics laboratory. Worksheets, answers to exercises, and a review test are provided. (SD)

1235 ED 098 059 Holland, Bill

Learning Activity Package, Geometry 114, LAPs 37-45.

Ninety Six High School, S. C. Pub Date-[73] Note-151p. See ED 069 506 for the !! LAPs in this geometry course Type- Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—Curriculum. \*Geometry. \*Individualized Instruction. \*Instructional Materials. "Learning Modules, Mathematics Education, Objectives, "Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

A set of nine teacher-prepared Learning Activity Packages (LAPs) in geometry, these units cover the topics of proof; geometric inequalities; perpendicular lines and planes in space; parallel lines in a plane, and parallel lines and planes; polygonal regions and areas; similarity; plane coordinate geometry; circles and spheres; and characterization and construction. The units each include a rationale for the material being covered, a list of behavioral objectives, a list of resources which indicate reading assignments from texts and which specify problem sets for the students to complete, a student self-evaluation sheet, suggestions for advanced study, and references. (DT)

ED 094 994

Luce. Marjory Muckey. Roy Mathematics for the Elementary School, Unit 16.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-

Pub Date—55
Note—100p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—4 Analytic Geometry. Curriculum.
"Elementary School Mathematics, Experientual
Learning, Geometric Concepts, "Graphs, Instruction, "Instructional Materials, "Teaching Guides. Units of Study. Worksheets

Identifiers—Group Theory, MINNEMAST. \*Minnesota Mathematics and Science Teaching Project, Pascal Triangle, Vectors (Mathematics)

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and whence in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subect areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit introduces students to the Cartesian coordinate syste n and, in particular, to the graph of a linear equation. Ideas associated with Pascal's triangle, gro ips, and vector spaces are also introduced informally. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

FD 094 992

Glaus, Marlene, Ed. My, rs. Donald F., Ed. Mathematics for the Elementary School, Unit 14. Symmetry, Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center.

Spons Agency National Science Foundation, Washington, D.C. Pub Date 65

Note - 80p

Pub Type — Guides - General (050) EDRS Price - MF01/PC04 Plus Postage. Descriptors — Curriculum. • Elementary Mathematics, Experiential Learning, \*Geometric Concepts, Instruction, \*Instructional Materials, Pattern Recognition, \*Symmetry, \*Teaching

Guides, Units of Study, Worksheets Identifiers—MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project The Minnesota School Mathematics and Science

Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of methematics and science in the elementary school carriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stones serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit extends the work on symmetry presented in an earlier unit. As well as mirror reflections and translatory motion, symmetry about a point is developed. Activities focus on finding and creating patterns. In the process children are led to discover a number of geometric relationships. Worksheets and commentanes to the teacher are provided and additional activities are suggested. (JP)

ED 094 987 Powell, Bonnie. Ed. Myers, Donald E. Ed. Mathematics for the Elementary School, Unit 6, Symmetry.

Minnesota Univ., Minneapolis. Minnesota School

Mathematics and Science Center.
Spons Agency—National Science Foundation.
Washington, D.C.

Pub Date-65

Note-47p.
Pub Type- Guides - General (050)

EDRS Price • MF01/PC02 Plus Postage.
Descriptors—Curriculum. • Elementary School Mathematics, Experiential Learning, • Geometric Concepts, Instruction. \*Instructional Materials.
Pattern Recognition. \*Symmetry. \*Teaching Guides. Units of Study. Worksheets
Identifiers—MINNEMAST. \*Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coaution of mathematics and science in the elenary school curriculum. Units are planned to provide children with activities in which they learn varie is concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented This unit presents a fundamental geometric concept of rigid motion. Two types of simple motion are presented to help children to find what patterns are unchanged by these motions; the two forms are sim ple translatory symmetry or repeating patterns, and bilateral symmetry or mirror reflection. In the process, children discover a number of geometrical relationships. This unit will provide the initial formative concepts necessary for various operations with symmetry. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1239 ED 09: 982

Powell, Bonnie, Ed. And Others Mathematics for the Elementary School, Unit 1.

Geometry, Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center.

Spons Agency—National Science Foundation,
Washington, D.C.

Pub Date—65

Pub Type Guides - General (680) EDRS Price - MF01 PC03 Plus Postage.
Descriptors "Curriculum, "Flementary School

Mathematics, Experiential Learning, "Geometric Concepts, Instruction, \*Instructional Materials. Concepts, Instruction, institute,
"Teaching Girdes, Topology, Worksheets
"minimis MINNEMANT, "Minnesota Math

Identifiers MINNEMAST, ematics and Science Teaching Project

The Minnesota School Mathematics and Science Feaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject it used to support and reinforce the other where appropriate, with common techniques and concepts being sought and explotted. Content is presented in story fashion. Th. stories serve to introduce concepts and lead to a tivities. Imbedded in the partures that accompany the stories are examples of the concepts presented This unit presents several common geometric concepts. The figures presented in the first story are square, circle, triangle, and oblong. The lessons center on recognition of these shapes in common objeers. The second story introduces topological properties of simple and non-simple curves. Worksheets and commentaries to the tracher are providea and additional activities are suggested. (IP)

ED 093 709

Waite. Jack

Proofs in Geometry, Mathematics (Experimental): 5218.23.

Dade County Public Schools, Miami, Fla

Pub Date

Note--15p., An Authorized Course of Instruction for the Quinmester Program

Pub Type- Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage. Descriptors-Behavioral Objectives, \*Curriculum,

Geometric Concepts. \*Geometry, Instruction. Mathematics, Mathematics Education, \*Objectives. \*Secondary School Mathematics. \*Teaching Guides, Tests

Identifiers--Proof (Mathematics), \*Quinmester Program

Designed for students who have mastered the skills and concepts in the regular geometry series of the Quinmester Program, this guidebook presents an additional course on the study of the nature of proof, using a Euclidean geometry model. The deveiopment of techniques of formal proof is simplified through the liberal use of partially-constructed proofs ready for completion. Overall course goals are specified, a course outline is provided, performatice objectives are listed, and text references keyed to the performance objectives are included. Also included is a short annotated bibliography. (JP)

ED 093 708

Wane. Jack

Nature of Proof. Mathematics (Experimental): 5228.33.

Dade County Public Schools, Miami, Fla Pub Date-72

Note-15p., An Authorized Course of Instruction for the Quinmester Program

Pub Type Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors - Behavioral Objectives. \*Curriculum. \*Geometry, Instruction, Mathematics, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers—Proof (Mathematics), \*Quinmester Program

This guidebook on minimum course content presents a study of the nature and methods of proof, using Euclidean geometry as a model. A more rigorous and formal course than usually offered, it is intended for the student who plans to study advanced mathematics. Overall course goals are specified, a course outline is provided, performance objectives are listed, and text references keyed to the performance objectives are provided. A short annotated bibliography is also included. (JP)

Lasoff. Edward M.

ED 093 706

Geometric Game Strategy, Mathematics (Experimental): 5209.55.

Dade County Public Schools, Miami, Fla Pub Date -72

Note: 41p.; An Authorized Course of Instruction for the Quinmester Program. A related document is ED 079 129

Pub Type - Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors Behavioral Objectives, \*Curriculum, Game Theory, Instruction, \*Mathematical Enrichment, Mathematics Education, \*Objectives, Problem Solving, Puzzles, \*Secondary School Mathematics, "Teaching Guides, Tests Identifiers—"Quinmester Program

Designed for the student who has completed the geometry series in the Quinmester Program, this guidebook on minimum course content provides an investigation of challenging mathematical activities which are not usually developed in other mathematics courses. The content includes brainteasers, puzzles, and game theory. Overall course objectives are specified, a nourse outline is provided, performs objectives are listed, and references keyed to the performance objectives are provided. A sample posttest is included along with a 94-item annotated bibliography. (JP)

1243

ED 088 998

Geometry: Curriculum Guide. Harlandale Independent School District, San An-

tonio, Tex. Corper Education Center.

Spons Agency—Office of Education (DHEW),
Washington, D.C.: Texas Education Agency.

Austin. Dept. of Occupational Education and

Technology.
Pub Date—[70]
Note—102p.

EDRS Price - MF01/PC05 Plus Postage.
Descriptors—Audiovisual Aids, \*Career Educa-

tion, \*Curriculum Guides, \*Educational Objectives, Educational Resources, \*Geometry, Performance Specifications, Resource Materials, \*Secondary Education, Teaching Methods, Units of Study Identifiers-Texas

The purpose of this curriculum guide is to help the geometry teacher in his endeavor to fulfill his teaching responsibilities. Space is provided for teachers' additions, deletions, notes, and criticisms which will be useful when the guide is revised. The guide is arranged in vertical columns relating the geometry curriculum concepts to: curriculum performance objectives, career concepts and performance objectives, suggested teaching methods, and audio-visual and resource materials. An outline is included at the beginning of the guide connecting its topics with the geometry textbook used in the school district Sources of audio-visual material are listed at the

end (DS)

ED 086 540

1244 Jasepher, Nelda Temple, Aline Geometry 3, Mathematics (Experimental): 5228.-

Dade County Public Schools, Miami, Fla. Pub Date - 7!

Note - 132p. An Authorized Course of Instruction for the Quinmester Program
EDRS Price - MF01/PC06 Plus Postage.

EDRS Price - MF01/PC06 Plus Postage.

Descriptors - Behavioral Objectives, "Curriculum, Enrichment Activities, "Geometry, Instruction, Mathematics Education, Measurement, Metric System, "Objectives, "Secondary School Mathematics, "Teaching Guides, Tests, Topology Identifiers, "Quinmester Program

This is the second of a two quin series which introduces the student to all the theorems usually included in high school geometry; emphasis is on understanding and use of these theorems without proof. The course develops definitions and properties of the plane and solid figures and formulates methods for finding their linear measure, lateral and total area measure, and volume measures. New material and enrichment activities include the following topics, application of metric measure, right triangle trigonometry, coordinate geometry, tana-grams, tesselations, flexagons, projections, polyhedral models, lopology, non-Euclidean geometry, and architectural design applications. Overall course goals are specified, a course outline, performance objectives, and suggested teaching strategies are listed. (3%)

ED 086 538 SFT Symmetry, Mathematics (Experimental): 5212.48.

Dade County Public Schools, Miami, Fla Pub Date

- 19p., An Authorized Course of Instruction

Sote - 19p., An Authorized Ceurse of Instruction for the Quinimester Program

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Behavioral Objectives, \*Curriculum, \*Geometric Concepts, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Texts Identifiers \*Quinmester Program

The Authorized Program Control of the Program of the Progra

This is the third in a series of four guidebooks on minimum course content designed to develop geo-metric concepts intuitively, using the "slides, flips, and turns" approach developed by the University of Illinois. Committee on School Mathematics. Topics include the development of the concept of symmetry, triangles and quadrilateral classifications, parallel and perpendicular lines and work with directed numbers. Overall course goals are specified, a jourse obtline, performance objectives and sug-gested teaching strategies are listed. A pretest and a posttest are also included (JP)

1.0 084 168 SFT Measurement and Construction, Mathematics (Experimental): 5212.49.

Dade County Public Schools, Miami, Fla Pub Date--72

Note--19p.; An Authorized Course of Instruction for the Quinmester Program EDRS Price - MF01/PC01 Plus Postage.

Descriptors-Behavioral Objectives, \*Curriculum, \*Geometric Concepts, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers—\*Quinmester Program

This hope for the formal of the content of

This the fourth in a series of four guidebooks on minimum course content designed to develop geo-metric concepts intuitively, using the "slide, flips, and turns" approach developed by the University of Illinois Committee on School Mathematics, Topics covered are: area; ratio; similarity; construction using ruler, compass, and protractor; and work with directed numbers. Overall course goals are specified; a course outline, performance objectives and suggested teaching strategies are listed. A pretest and a posttest are also included (JP)

1247 ED 084 163 Waite, Jack

Geometric Construction, Mathematics: 5211.61. Dade County Public Schools, Miami, Fla Pub Date 72

Note -- 31p.; An Authorized Course of Instruction

Note—31p., An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Behavioral Objectives, \*Curriculum, \*Geometric Concepts, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests Identifiers—Quinmester Program

An optional guidebook designed to follow the study of Mathematical Structures, this booklet specifies minimum course content for introductory geometric constructions and concepts. It includes the use of geometry tools, and covers basic geomet ric figures and congruence, angles, perpendiculars and parallels, triangles, perimeter and circumterence, area and volume, symmetry, and similarity Overall course goals are listed, teaching strategies suggested, performance objectives stated, a course outline provided, and textbook references keyed to the outline are included. Test items are given, plus an annotated listing of seven references. (DT)

ED 080 365

Madeheim, James Geometry [Sahuarita High School Career Curriculum Project].

Subuarita High School District 130, Amz Pub Date + [73] Note + 248p EDRS Price - MF01/PC10 Plus Postage.

Descriptors Activity Units, Curriculum Guides,
"Geometric Concepts, "Instructional Materials,
Logic, Mathematics Education, Ratios (Mathematics),
"Secondary School Mathematics,
Teacher Descriped Materials, Trigonometry,
"Units of Study
Identifiers—Proof (Mathematics)
This control of the proof of the pro

This volume contains a series of teacher-developed units to supplement the textbook in a high school geometry course. Each unit contains a statement of objectives, content discussion, workshorts and activity suggestions. Major topics in chiede logic, proofs, fatio and proportion, similarity and trigonometry. Practical applications are given in each unit where possible. Related volumes in the series are SF 016 through SL 026 647, (LS).

ED 079 129

Josephne, Neala Temple tion.

Geometry 2. Mathematics (Experimental): 5218 -

Dade Courts, Public Schools, Miano, 114 Pub Date, 73

Pub Date 71 Note 74p; An Authorized Coarse of Instruction Note 74p. An Authorized Stor the Qui intester Program

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Behavioral Objectives, Curriculum \*Ocometrs, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics \*Teaching Guides, Tests !Hentificis \*Quinmester Program

This is the second of two guidebooks on minimum ourse content for a school geometry, and is decourse content for signed for the student who has mastered the skills and concepts of Geometry I and who had a final average of low B or less. Emphasis is on understanding and use of theorems without proof. This course develops definitions and properties of triangles, quadrilaterals, circles, polygons, and solid figures Methods for finding linear measures, lateral and total measures, and volume measures are formulated the Pythagorean Theorem and special right triangle relationships are developed. Overall course goals are stated, then for each of the topics there is a list of performance objectives, textbook references, course content, and suggested learning activities. Sample positiest items, an annotated bibliography of to books, and a list of films, filmstrips, and transpareneies are included (DT)

ED 070 646 Congruent Transformations. A Workshop Ap-

proach for Grade 9 Students. Haiton County Board of Education, Burlington (Ontario)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Congruence, Curriculum, Experiential Learning, "Geometric Concepts, Instructional Materials, "Laboratory Procedures, Mathematics Education, "Secondary School Mathematics, "Transformations (Mathematics, "Transformations (Mathematics) ematics), Units of Study, Worksheets

This instructional unit uses an intuitive approach in introducing the concept of congruent transforma-tions. Extensive use is made of worksheets our manipulative methods. In the latter stages, the SSS, ASA, and SAS theorems are presented. The unit concludes with geometric proofs requiring the use of the fact that corresponding parcs of congruent triangles are congruent (LS)

1251 ED 070 645 Introduction of Solids, Faces, Points and Lines,

Halton County Board of Education, Burlington (Ontario) (ote 74p

Descriptors Connection Discovery Learning, \*Elementury School Mathematics, \*Experiential Learning, "Geometric Concepts, Instruction, "Instruction," Materials, "Laboratory Procedures Manipulative Materials, Mathematics Education, Units of Study

This is a series of felo units introducing the concepts of solids, faces of solids, points lines, and planes. Emphasis is placed on the discovers ap-proach with a maximum of manipulation and ex-perimentation on the part of the children face and has suggested activities that include games, as diodial projects, worksheets, and discussion ques-tions. Some objectives and sample evaluative questions are included (LS).

ED 069 537 1252

Activities in Geometry, Grades 4-6.

Halton County Board of Education, Burlington (Ontario)

Pub Date [72]

Note 98p EDRS Price - MF01 PC04 Plus Postage. Descriptors Curriculum, "Elementary School Mathematics, Experatina Leatning, "Geometric Concepts, "Graphs, Instruction, "Instructional Materials, Intermediate Grades, Laboratory Procedures, Mathematics Education, "Measure-ment, Worksheets



This is a collection of activities for individual or small group work. All can be done with a minimum of teacher direction. Major topics are. (1) measurement-length, area, and volume: (2) geometric shapes triangles, quadrilaterals, polygons, and three-dimensional, (3) graphing in the plane and use of statistical graphs, and (4) angular measurement and circles. Most sections have worksheets, explanations, examples, and questions for discussion CLST

1253

ED 069 536

Herman, Daniel L.

Similarity and Congruence, Teacher's Guide.

Oakland County Schools, Pontiae, Mich. Spons Agency "Bureau of Elementary and Secondary Education (DHEW OE), Washington, D C

ary Education (DHEW OE), Washington, D.C. Pub Date: Mar. "I. Grant. OEG-68-056-35-0. Note. 102p., Revised "I.dition. EDRS Price - MF01, PC05 Plus Postage. Descriptors... "Gassification... "Congruence, Curriculum, "Geometric Concepts, Instruction. "Instructional Materials, Low Ability Students, Mathematics. Education, Objectives, Ratio. (Mathematics). "Secondary School Mathematics," "Feaching Guides, Units of Study. Identifiers. Elementary Secondary Education Act.

Identifiers Elementary Secondary Education Act

This guide to accompany "Similarity and Congruence" contains all of the student information in SE 015, 346, plus, supplemental teacher, materials. A summary of terminal objectives and teaching aids and equipment is given. With each section are list ings of objectises, teaching aids, suggested approaches, and discussion questions. Related documents are SE 015-334 - SE 015-346. This work was prepared under an ESEA Title III contract (LS)

ED 069 535

Daniel L

ity and Congruence.

G. ad County Schools, Pontiac, Mich.

Spons Agency—Bureau of Elementary and Jecondary Education (DHEW OE), Washington, D.C.

Pub Date —Mar. 71

Crant - OEG-68-05635-0
Note--55p., Revised Edition
EDRS Price - MF01/PC03 Plus Postage.
Descriptors - Classification. \*Congruence. Curriculum, \*Geon., ne Concepts, Instruction, \*Instructional Materials, Low Ability Students, Mathematics Education, Objectives, Ratios (Mathematics), \*Secondary School Mathematics, Units of Study, Worksheet

dentifiers - Elementary Secondary Education Act Title III

This instructional unit is an introduction to the common properties of similarity and congruence Manipulation of objects leads to a recognition of these properties. The ASA, SAS, and SSS theorems are not mentioned. Limited use is made in the application of the properties of size an 'shape preserved by similarity or congruence. A teacher's guide is available. Related documents are SE 015 334 - SE 015 345 and SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

ED 069 534

Prak. Diane M.

Geometric Excursions, Teacher's Guide.

Oakland County Schools, Pontrac, Mich Spons Agency—Bureau of Elementary and Second-ary Education (DHEW:OE), Washington, D.C. Pub Date -- Aug 70 Crant -- OEG-68-05635-0

Note - 128p.; Revised Edition EDRS Price - MF01/PC06 Plus Postage. Descriptors - Curriculum, \*Geometric Concepts.

Instruction, \*Instructional Materials, Lew Ability Students, \*Manipulative Materials, Mathematics Education, Objectives, \*Secondary School Mathematics, \*Teaching Guides, Units of Study Identifiers - Elementary Secondary Education Act

Title III

This guide to accompany "Geometric Excur-ons" genuants all of the student information in SE 015 344 plus additional teacher materials. With each section are listings of objectives, equipment and teaching aids, suggested approaches, and discussion questions. Musters are provided for making transparencies and student copies of patterns for three-dimensional solids. Related documents are SE 015 334 - SE 015 344, SE 015 346, and SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

Ptak, Diane M.

Geometric Excursions.

Oakland County Schools, Pontrac, Mich Spens Agency Bureau of Flementary and Second ary Education (DHEW OF), Washington, D C Pub Date Aug 70 Grant OEG-68-05635-0 Note 108p., Revised Edition

EDRS Price - MF01 PC05 Plus Postage.
Descriptors Curriculum, "Geometric Concepts,
Instruction, "Instructional Materials Cow Ability
Students, "Manipulative Materials Machematics
Education, Objectives, "Secondars School, Mathematics, Units of Study, Worksheets,

Identifiers: Flementary Seconds > Education Net Title III

This geometric instructional unit consentrates on student use of three-dimensional in cripalative sids. Rigorous definitions are avoided as students use categorical reasoning based on their own expenences. Through their own discovery of relationships, it is hoped students will become interested in geometry, awire of geometric forms in the world, and make better use of spatial perception. A teather's guide is available. Related documents are SI 015 334 - SE 015 344 and SE 015 345 - Sc 015 34 This work was prepared under an ESFA Title III contract (LS)

ED 064 533

oburn, Terrence G

Where is the Point? Teacher's Guide.

Oakland County Schools, Pontiac, Mich Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington D ( Pub Date -Jan 70

Note - 211p., Revised Edition EDRS Price - MF01/PC09 Plus Postage.

Descriptors—Analytic Geometry, Curriculum, \*Geometric Concepts, \*Graphs, Instruction, \*Instructional Materials, Low Ability Students, Mathematics Education, Objectives, \*Secondary School Mathematics, \*Teaching Guides, Units of Students Study

Identifiers -Elementary Secondary Education Act Title III

This guide accompanies "Where is the Point" contains all of the student materials in SE 015 342 plus supplemental teacher materials. With each less son there is a list of objectives and equipment and teaching aids, suggested approaches, discussion questions, and answers. Appendices include tran-parency masters and supplemental activities Related documents are SE 015 334 - SE 015 342 and SE 015 344 - SE 015 347. This work was prepared under an ESEA Title III contract. (LS)

ED 069 531

Cohurn, Terrence G Where is the Point?

Oakland County Schools, Pontiac, Mich.

Spons Agency - Bureau of Elementary and Seconds ary Education (DHEW GE), Washington, D C Pub Date -Jan 70 Grant - OEG-68-05635-0

-- 91p., Revised Edition

EDRS Price - MF01 PC04 Plus Postage.

Descriptors—Analysis Geometry, Curriculum,

"Geometric Concepts, "Graphs, Instruction, "In-Structional Materials, Low Ability Students, Mathematics Education, Objectives, \*Secondary School Mathematics, Units of Study, Worksheets Identifiers—Elementary Secondary Education Act

This instructional unit presents the coordinate system as a correspondence between a set of numbers and a set of points. A variety of coordinate systems are studied with major emphasis on the rec tangular system. Basic problem solving and critical thinking skills are practiced in practical application situations. Related documents are SE 015-334 - SE 015-341 and SE 015-343 - SE 015-347. This work was prepared under an ESEA Title III contract (LS)

ED 069 530

Coburn, Terrence G. Cox, Philip L.

Angle Measure, Teacher's Guide.

Oakland County Schools, Pontiac, Mich
Spons Agency - Bureau of Elementary and Seconds

ary Education (DHEW OE), Washington, DC Pub Date: Sep 70 Grant: OEG-68-05635-0 Note: 255p., Revised Edition

FDRS Price - MF01 PC11 Plus Postage Descriptors Carriculant, \*Geometric Concepts Instruction, \*Instructional Materials Low Modes students, Manipulation Materials, Mathematics Education, \*Measurement, Objectives, \*Second ary School Mathematics "Teaching Crackes Units of Study

Identifiers. Elementary Secondary Education Ac-Listac IIII

This guide to accommus. Night Measure (i.e., turns all of the stank of allowing and of SU(0)  $\times 10^{-2}$ plas supplement a contract materials. Assuming a di-terminal objectives and recessive comprisent of t teaching aids is given. Discussion topics, teaching tenering and its given plot assembly topics being re-suggestions, and answers appear with each so from Related documents on the offs Garlos Forts saw and SE 018 642 (SE 315 547 Fas work was pre-pared under as ESEA Tope III contract of So.

LD 069 529

Coburn, Terrence G., Co. Pouge I. Angle Measure.

Angle Measure:
Oakland County Network, Propin Measure
Spons Ageney Buteau of Economiasy and Second
ary Education (DHEW OE) Washington (DE
Pub Date Sen 70
Grant OECo-68-086-80
Note 147p., Revised Edition

Note: 14°p., Revised Edit, i. EDRS Price - MF01 PC06 Plus Postage Descriptors: Corriculum, \*Geometri, Concept-Instruction \*Instructional Materials, Fow Ability Students, Manapulatis, Materials, Mathematics Education, \*Measurement Objections \*Second-ary School Mathematics, Units of Study, Weightens

Identifiers - Elementary Secondary Education Late III

This instructional unit seeks to prevaid the chident to exhibit competence in the mechanics of measuring and estimating armic size and in making generalizations on the nature of measurement. Experimentation with the use of circular and semicircular protractors is encouraged. Exercises and discussion questions are given for each section. Appendices are included which contain material for review, remediation, and enrichment. A teacher's guide is also available. Related documents are NE 015 334 - SE 015 339 and SE 015 341. SE 015 347 This work was prepared under an FSF 5 Inte III contract (LS)

ED 059 086

. Nelda And Others

azed Course of Instruction for the Quinmes-

Yrogram, Mathematics: Geometry county Public Schools, Miami, Fla late 71 dub Date Note 33p

EDRS Price - MF61 PC02 Plus Postage.

Descriptors Corriculum, \*Corriculum Guides, \*Geometry, Instruction, Mathematics Education, Objectives, Plane Geometry, \*Secondary School Statistical Control of the Postage Control of the Post Mathematics, Student Evangarion, Textbooks Identifiers \*Quinmester Program

Outlined are the minimum requirements for a quantester course of introduction to high school geometry. After a scription of the course content and overall goals, further details are presented in nine sections. Each section gives performance objectives, textbook references, content (including lists of vocabulary and associated properties), and suggested teaching strategies. The material covered includes angles, parallels, perpendiculars, congruent and similar triangles, inequalities and constructions There is an emphasis on the use of simple visual aids in developing the initial concepts. The pamphier closes with sample postiest items and a hibliography of selected textbooks and audiovisual materials (MM)

1263 ED 053 926

Helwig, G. Alfred And Other. Analytic Geometry, A Tentative Guide.

Baltimore County Public Schools, Towson, Md

Pub Date 6

Note 53p

Available from Baltimore County Public Schools,

Avairance from Balamore County Punde Scholls, Office of Curriculum Development, Towson, Maryland 21204 (\$2.00)

EDRS Price - MF01 PC03 Plus Postage,
Descriptors \*Analytic Geometry, Curriculum, Curriculum Guides, Geometric Concepts, Instruction, Mathematics, \*Secondary School Mathematics, \*Teaching Guides

This teacher's guide for a semester course in analytic geometry is based on the text "Analytic Geometry" by W. K. Morrill Included is a daily



schedule of suggested topics and honicwork assignments. Specific teaching hints are also given. The content of the course includes point and plant vectors, straight lines, point and space vectors, p ines, straight lines in space, circles, conics, transfo mation of axes, and polar coordinates. (Author's T)

1264 Klier, Katherine M., Ed. ED 050 980

Geometry, Senior High School Curriculum Guide. Baltimore County Public Schools, Towson, Md Pub Date -63

Note 200p.

Available from "Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204 (\$5.00)

Document Not Available from EDRS.

Descriptors—"Curriculum, "Curriculum Guides, "Geometry, Logic, "Mathematics Education, "Secondary School Mathematics

This syllabus presents a fused course in plane, solid, and coordinate geometry for secondary school students. Elementary set theory, logic, and the principles of separation provide unifying threads throughout this approach to geometry. There are actually two curriculum guides included, one for each of two different texts. Henderson, Pingry, and Robinson's "Modern Geometry" and Jurgensen. Donnelly, and Dolciani's "Modern Geometry This curriculum guide is one of several prepared for secondary school mathematics instruction by Baltimore County Public Schools. (JG)

ED 050 059

Geometry. Mathematics Curriculum Guive. Gary City Public School System, Ind.

Pub Date -- 68 

EDRS Price - MF01/PC0? Plus Postage.

Descriptors— \*Curriculum Guides, \*Geometry, 
\*Mathematics, \*Secondary Education, \*Second-

ary School Mathematics
GRADES OR AGES: Secondary, SUBJECT
MATTER: Geometry, ORGANIZATION AND
PHYSICAL APPEARANCE. The subject content of the guide is arranged in four columns-major areas, significant outcomes, observations and suggestions, references and films. The guide is mimeographed and spiral bound with a soft cover OBJECTIVES AND ACTIVITIES: General objecties are listed in the introductory material, with more specific objectives in the significant outcomes columns. Activities are not listed in detail 1%-STRUCTIONAL MATERIALS. Texts, films, and filmstrips are listed for the major areas, and there is a brief bibliography. STUDENT ASSESSMENT A multiple choice test, with answers, is included to provide a means of evaluation (MBM)

1266 ED 046 716 Brydeguard, Marguente Inskeep, James E., Ir Readings in Geometry from the Arithmetic Teacher.

National Council of Teachers of Mathematics, Inc., Washington, DC

Pub Date -

Note- 1260

Available from National Council of Teachers of Mathematics, 1201 16th St. N.W., Washington, D.C. 20036

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Curriculum, \*Elementary School Mathematics, \*Geometry, \*Instruction, \*Mathematical Enrichment, Mathematical Models, Mathematics, \*Secondary School Mathematics, Teaching Guides

This is a book of readings from the "Arithmetic Teacher" on selected topics in geometry. The articles chosen are samples of material published in the journal from its beginning in February 1954 through February 1970. The articles are of three major types. The first is classified "involvement." These articles describe geometry units in which the students build geometrical models, play games, and draw geometrical objects. Another article in this classification focuses on a teacher preparation course in which the future teachers experience the learning activities of the students. The second group of articles is categorized "instruction-techniques". These articles focus on the techniques of teaching units in informal geometry using mirrors, models, toys, and Mobius bands. The third type of article is termed "instruction-rationale." This type of article gives reasons why geometry should be taught in the elementary grades and tells what parts of geometry should be taught. In Indeed in the book is a bibliography of articles published in the "Arithmeti Teacher" pertinent to geometry (Author CT)

Walter, Marion I

Boxes, Squares and Other Things. A Teacher's Guide for a Unit in Informal Geometry.

National Council of Teachers of Mathematics, Inc. Washington, D.C. ub Date: 70

Pub Date

Note 98p

Available from National Council of Teachers of Mathematics, Inc., 1201 16th St., N.W., Washington, D.C. 20036 (\$3.50)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - Bibliographies, \*Elementary School Mathematics, \*Geometrs, \*Instruction, \*Mathematics, Pattern Recognition, \*Teaching Guides Identifiers - National Council of Leachers of Mathematics

This unit describes an experience in informal geometry that is based on work with construction paper and milk cartons. The description is mostly of work actually carried out by children in the elementary grades involving such mathematical conceptas congruence, symmetry, the idea of a geometric transformation, and some basic notions of elemen-tary group theory. The purposes of the unit are (1) to give students experience in visualizing two and three dimensional objects, and (2) to give students opportunity to learn to raise questions, pose problems, and learn to solve them (RP)

1268

ED 033 847

Enedman Remard

[Geometry Through Symmetry, Cambridge Conforence on School Mathematics Feasibility Study No. 32.1

Cambridge Conference on School Mathematics, Newton, Mass. Pub Date—[69]

-58p

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Elementary School Mathematics
"Geometric Concepts, "Geometry, Grade 8, "Instruction, "Instructional Materials, "Mathemat-Resource Materials. Secondary Mathemarics

Identifiers. Cambridge Conference on School Mathematics MA

These materials were written for the use of a class of eighth grade high ability students in a four week course sponsored by Educational Services Incorporated on the Stanford campus. They represent a practical response to the proposal by the Cambridge Conference of 1963 that geometry be taught by vector space methods. Instead of using vector methods. these materials represent an attempt to obtain the geometrical properties of figures from proofs and arguments about their symmetry properties. These notes contain instructional materials on such mathematical concepts as reflection in the plane, perpendicularity, central symmetry, translation of the plane, and rotation. In addition, these notes contain definitions, exercises, and summaries of results obtained in class. [Not available in hardcopy due to marginal legibility of original document ] (RP)

1269

Walter, Manon

Informal Geometry for Young Children; Cam-bridge Conference on School Mathematics; Feasibility Study No. 34b.

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date-- [69]

Note--37p. EDRS Price - MF01 Plus Postage, PC Not Availgble from EDRS.

Descriptors - \*Elementary School Mathematics, \*Geometric Concepts, \*Geometry, Grade 1, Grade 6, \*Instruction, \*Instructional Materials, Mathematical Concepts, Resource Materials

These materials were written with the som of re-Secting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. These materials are intended to provide children with a variety of informal activities in intuitive geometry in the elementary school. Opportunities are provided for children to gain experience with many types of rigid motions - namely translations, rotations, and reflections. The type of work described in this report we students the opportunity to become familiar. is direct experience and experiment, with impor-

tant geometrical concepts before they were to be studied theoretically. Included are descriptions of a number of activities. Comments by teachers concerning the effectiveness of various activities and procedures are also included. This document is the nest available copy. (Not available or hard copy due to marginal legibility of original document (RP)

1270 FDORGH

An Experimental Fext in Transformational Geometry, Student Text; Cambridge Conference on School Mathematics Feasibility Study No.

Cambridge Conference on School Mathematics. Newton, Mass

Pub Date [69]

Note 89p

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Geometric Concepts, \*Coometry, \*Instructional Materials, Mathematical Concepts, Mathematics, \*Secondary School Mathematics, Textbooks

This is part of a student text which was written with the aim of reflecting the thinking of Tig Carr bridge Conference on School Mathematics (CCSM): regarding the go us and objectives for mathematics The instructional materials were developed for teaching geocietry in the secondary schools. This document is chapter six and titled Motions and Transformations. Presented is the concept of a gid. motion in the plane. Various kinds of rigid motions are considered, certain inatheniatical ideas about rigid motions are obtained, and a number of applications are described. One of the chief mathematical ideas presented is that every rigid motion can be viewed either as a translation, a rotation, a reflection, or a combination of reflection and translation This idea is d others lead to a variety of useful applications in geometry. Several of these applications involving rigid motions are used to solve geometrical problems. Both explanatory materials and student problems are included. [Not available in hard copy due to a againal legibility of original document]  $(\mathbb{R}^n)$ 

Provisional Approaches to Goals for School Mathematics; Cambridge Conference on School Math-

ematics Feasibility Study No. 37. Cambridge Conference vir School Mathematics

Newton, Mass [69]

Pub Date [t Note 172p.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Calculus, \*Carriculum Development, \*Elementary School Mathematics, \*Geometry, Graphs, Mathematical Applications, Measurement. Probability, Secondary School Mathemat-

These materials were written with the aim of reflecting the thinking of Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics K-6. In view of the experiences of other curriculum groups and of the general discussions since 1963, the present report in tiates the next step in evolving the "Goals Three areas considered in this report are geometry, functions in preparation for calculus, and applications. Two working papers are presented on upplications - probability and mechanics and slopes. One working paper of intental functions is included. Fifteen working papers are presented involving geometry and geometrical concepts. The papers on geometry include examination and description of common objectives, playing with figures, blocks, and tessellations, constructions, graphs and polygons; tessellations, dissection of figures, order, measutement, similarity and map making, symmetry, congruence, and rigid motion, transformation groups, rotations and matrices, iterated reflections mirrors, knots, and spheres, cylinders, and torus Not available in hard copy due to marginal legibility of original document! (RP)

ED 033 029

Stotzenberg, Gabriel

Geometry Report; Cambridge Conference on School Mathematics Feasibility Study No. 39. Cambridge Conference on School Mathematics,

Newton, Mass. Pub Date [69] Note 52p.



EDRS Price MF01 Plus Postage, PC Not Available from EDRS.

Mathematics, "Geometric Concepts, Grade 7, "Instruction, "Number Concepts, "Secondary School Mathematics lentifiers (Concepts, Comber Concepts) Descriptors Arithmetic,

Identifiers - Cambridge Conference on School

Mathematics MA, Massachusetts

These materials were written with the aim of reflecting the thinking of the Cambridge Conference on School Mathenianes (CCSM) regarding the goals and objectives for school mathematics report deals with some seventh grade mathematical concepts taught at Cambridge Friends' School. The discovery approach was utilized by the teacher in order to involve students in the classroom discussions. The problematic areas which are dealt with it. this report focus on (1) geometry as physics versus geometry as mathematics. (2) proofs and mathematical reasoning, (3) area, and (4) infinite process (approximations). Instructional procedures are described and student reactions to various procedures and activities are listed. [Not available in hard copy due to marginal legibility of original document RPI

127 -McLane, Lyn

ED 031 028

Symmetry Motion Classes; Cambridge Conference on School Mathematics Feasibility Study No. 40

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date - [69] Note - 28p.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS,

Descriptors--- Arithmetic, Curriculum Development, "Elementary School Mathematics, "Geo-metric Concepts, Instruction, "Instructional Materials. \*Symmetry

These materials were written with the aim of reflecting the 'ninking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. This document details the planning and response for each of ten lessons involving symmetry motions.

The problems focused on (1) combining motions in a given order, and (2) finding the axis of symmetry for the triangle, rectangle, square, and octagon. Comments on the symmetry motion sessions follow at the end of the notes. [Not available in hard copy due to marginal legibility of original document].

1274 ED 033 023 n Experimental Text in Transformational Geometry; Teachers' Guide; Cambridge Conference on School Mathematics Feasibility Study No. 43b.

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date -- [69]

EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors—"Elementary School Mathematics,
Geometric Concepts, "Geometry, "Instructional
Materials, "Mathematics, Secondary School Mathematics. \*Teaching Guides

Identifiers-Cambridge Conference on School

Mathematics MA

Maintenation of This trachers' guide was written to be used in conjunction with the student text. An Experimental Text in Transformational Geometry. The guide is intended to help teachers who have responsibility for teaching the topics Motions and Transforma-tions in the Plane. Each section commences with a general discussion concerning the major ideas which are to be developed and understood by the students. In addition, situations and statements which could be difficult for students are identified. Finally, answers to questions and problems presented in the students' text are provided. [Not available in hard copy due to marginal legibility of original document]. (RP)

ED 021 731

Foley, Jack L. Similarity. Pub Date - May 67

1275

Sote--- 530

EDRS Price - MF01/PC03 Plus Postage

Descriptors—Curriculum, Curriculum Descionment, Elementary School Mathematics, Geometry, Instructional Materials, Low Ability Students, Mathematics, Scoondary School

Mathematics

Identifiers Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for this project. A Porgram for Mathematic of the dedeveloped Pupils. A project learn, one also, moderneed pupils. service teachers, is being used to write and develop the materials for this program. The materials developed in this booklet are based on activities involvring (1) similar geometric figures. (2) similar triangles, (3) classification of frangles (4) constructing triangles and similar triangles, and (5) finding the inissing length of similar polygons (RP)

ED 020 895

FOLEY, JACK L

ANGLES, MEASURES, Pub Date AUG67 Note 35P

EDRS Price - MF01 PC02 Plus Postage.
Descriptors \*Arithmetic, \*Flementary School

Mathematics, Extracurricular Activities, "In-structional Materials, Low Ability Students," "Mathematics, Trigonometry

Identifiers Elementary Secondary Education Act Title 111

THIS BOOKLET, ONE OF A SERIES, ITAN BEEN DEVELOPED FOR THE PROJECT PROGRAM FOR MATHEMATICALLY DERDEVITOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING UPER TO WESTER AND DEVELOPED TO WESTER AND DEVELOPED TO MAKE THE AND DEVELOPED TO IS BEING USED TO WRITE AND DEV. 19P
THE MATERIALS FOR THIS PROGRAM THE
MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (I) ANGLE ME. UREMENT.
(2) ANGLES AND TRIANGLES, CONTROLORS
ANGLES AND MEASURING EX. ANGLES ANGLES. (4) MEASURING TH AND EXTERIOR ANGLES OF (5) INSCRIBED ANGLES, AND AND ANGLES, ACCOMPAN' BOOKLETS WILL BE A STRATEGY BOOKLET WHILL CLUDE A DESCRIPTION OF NTERIOR NYGONS, N. LINES O THESE NCHING WILL IN-CLUDE A DESCRIPTION OF ACTUMENT OF THE SECOND OF THE SECON

1277 FOLEY JACK L CURVES, VERTICES, KNG7S AND SUCH. Pub Date -- AUG67

EDRS Price - MF01/PC03 Plus Postage.
Descriptors - Arithmetic. \*Elementary School Mathematics, Extracurnicular Activities, "In-structional Materials, Low Ability Students, "Mathematics, Topology

Identifiers- Elementary Secondary Education Act

Title III
THIS BOOKLET, ONE OF A SERIF! HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS. IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE THE MATERIALS FOR THIS PROGRAM, THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE SUCH CONCEPTS AS (1) SIMPLE CLOSED CURVES, (2) NETWORKS, (3) MAP COLORIV (4) TOPOLOGICAL TRANSFORMAT (5, (5) THREE DIMENSIONAL TOPOLOGY, AND (6) KNOTS, ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF THE CONTROL OF TH A TEACHING STRATEGY BOOKLET'
WHICH WILL INCLUDE A DESCRIPTION OF
TEACHER T. THNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES,
AND SUGGESTED VISUAL MATERIALS (RP)

ED 020 888 FOLEY, JACK

THE MATH GO-ROUND, A UNIT OF MATH-ASBORG.

Pub Date--NOVA

EDRS Price - MF01, PC02 Plus Postage,
Descriptors - \*Arithmetic, Division, \*Elementary
School Mathematics, Extracurricular Activities. Geometry, \*Instructional Materials, Low Ability Students, \*Mathematics, Multiplication Identifies - Elementary Secondary aducation Act

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UN-DERDEVELOPED PUPILS & PROJECT

HAM, INCLUDING HACHERS IN BLING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS DEVELOPED IN THIS BOLK LET INCLUDE OF NUMERALS AND GEO-METRICAL PATTERNS OF ACTIVITIES FOR DISCOVERD OF "ATTERNS IN AN EXPEDIT HON AND DROY ON THE IS FOR DROST BILLIA AND GROVE OF THE INVOLVENCE PRIME AND COMPOSITE NUMBERS A COMPANYING THE NEBOOKLE IS WILL BE A TEACHING STRAILGY ROOKLE I WHICH WILL INCULDE A DESCRIPTION OF THACHER TECHNIQUES, METHODS SEG-GESTED SEQUENCES ACADEMIC GAMES AND SUGGESTED VISUAL MATERIALS

FD 02 (88) FOLLY JACK L MANEUVERS ON A GEO-BOARD. Pub Date NOV67 Note 23P

EDRS Price - MF01 PC01 Plus Postag -Descriptors \*Anthemetic, 'Hillomentary School Mathematics, Extra, oricidar Activities Geometry, \*Instructional Visterials Low Object St. dents, \*Mathematics, Trigonometrs

Identifiers - Flementary Secondary Education Ac-

THIS BOOKLET, ONE OF A SERIES HAS SEEN DEVELOPED FOR THE PROJECT. A PROGRAM FOR MATHEMATICALLY IN DERDEVELOPED PUBLS A PROJECT TEAM, INCIT DING INSERVICE TEACHERS IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS I ROGRAM, I'HE MATERIALS DEVELOPED IN THIS BOOK LET INCLUDE ACTIVITIES ON (I) CON-STRUCTION OF SQUARES, RECTANGLES TRIANGLES, AND PARAULELOGRAMS HAVING A GIVEN INDICATED AREA ( DISCOVERING RELATIONSHIPS BETWEEN PERIMETER, LENGTH, WIDTH, AND AREA OF GEOMETRICAL CONSTRUCTIONS, AND (3) CONSTRUCTING NETWORKS ACTION-PANYING THESE BOOKLETS WILL BY A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS SOGGESTED SEQUENCES, ACADEMIC GAMES AND SUGGESTED VISUAL MATERIALS

1280 ED 013 517 NINTH GRADE PLANE AND SOLID GEOME-TRY FOR THE ACADEMICALLY TAL-ENTED, TEACHERS GUIDE.

Cleveland Public Schools, Ohio, Ohio Scate Dept of Education, Columbus

Pub Date -- 63 Note 262P

Note 2027
EDRS Price - MF01 / PC11 Plus Postage.
Descriptors \*Curriculum Guides, \*Corted, Grane

9, \*Plane Geometry, \*Solid Geometry, Special
Education, Units of Study

Identifiers COLUMBUS

A UNIFIED TWO-SEMESTER COURSE IN PLANE AND SOLID GEOMETRY FOR THE GIFTED IS PRESENTED IN 15 UNITS, EACH SPECIFYING THE NUMBER OF INSTRUCTIONAL SESSIONS REQUIRED UNITS ARE SUBDIVIDED BY THE TOPIC AND ITS CON-CEPTS, VOCABULARY, SYMBOLISM, REF-ERENCES (TO SEVEN TEXTBOOKS LISTED IN THE GUIDE), AND SUGGESTIONS THE APPENDIX CONTAINS A FALLACIOUS PROOF, A TABLE COMPARING EL CLIDEAN AND NON-EUCLIDEAN GEOMETRY, PRO-JECTS FOR INDIVIDUAL ENRICHMENT, A GLOSSARY, AND A 64-ITEM BIBLIOGRA-PHY RESULTS OF THE STANDARDIZED TESTS SHOWED THAT THE ACCELERATES SCORED AS WELL OR BETTER IN ALMOST ALL CASES THAN THE REGLEAR CLASS PUPILS, EVEN THOUGH THE ACCELED-ATES WERE YOUNGER SUBJECTIVE EVALUATION OF ADMINISTRATION. COUNSFLORS, TEACHERS, AND PUPILS SHOWED THE PROGRAM WAS HIGHLY SUCCESSFUL (RM)



ED 010 393
DEROLF, JOHN J. MIENTKA, WALTER E
AN ADVANCED PLACEMENT COURSE IN
ANALYTIC GEOMETRY AND CALCULUS
(MATHEMATICS XV X AP).
Nebraska Univ., Lincoln.

Nebraska Univ., Lincoln. Report No.—BR-5-0386-B; CRP-2010-B

Nebraska Univ., Lincoln.
Report No.—BR-5-0386-B; CRP-2010-B
F-b Datc—64
Note—132P.
EDRS Price - MF61/PC06 Plus Postage.
Pescriptors—6/2 manced Placement, Advanced Students, \*Ana...ytic Geometry, \*Calculta. \*Correspondence Study. Curriculum Guides. High School Students, Lesson Plans, Student Placement, Study Guides, \*Textbooks Identifiers—NEBRAS:
THIS TEXT ON ALYTIC GEOMETRY AND CALCULUS IS A CORRESPONDENCE COURSE DESIGNED FOR ADVANCED PLACEMENT OF HIGH SCHOOL STUDENTS IN COLLEGE. EACH OF THE 21 LESSONS INADDITION. SUPPLEMENTARY EXPLANATIONS AND COMMENTS ARE INCLUDED THAT (1) PROVIDE ILLUSTRATIVE EXAMPLES OF CONCEPTS AND TECHNIQUES DISCUSSED IN THE TEXT. (2) CLARIFY IMPORTANT DEFINITIONS AND PROOFS GIVEN IN THE TEXT. AND (3) BROADEN THE SCOPE OF THE COURSE B' INTRODUCING IMPORTANT CONCEPTS NOT DETAILED BY THE TEXT. ANOTHER REPORT ON THIS PROJECT IS ED 010 392. (GC).

Holland, Bill Learning Activity Package, Geometry. Ninety Six High School, S. C. Pub Date—72 Note—58p.

Note—58p.

EDRS Price - MF01/PC03 Plns Postage.

Descriptors—Curriculum, "Geometry, "Individualized Instruction, "Instructional Materials, Mathiatins Education, Objectives, "Secondary, School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study A set of three teacher-prepared Learning Activity Packages (LAPs) in geometry, the units cover the topics of distance, lines, clanes, separation; angles

topics of distance, lines, clanes, separation; angles and triangles; and congruences. The units ach include a rationale for the material, a list of behavioral objectives, a list of resources including texts (with reading assignments and problem sets specified) and tape recordings. a student self-evaluation sheet, suggestions for advanced study, and references. For other documents in this series, see SE 015 193. SE 015 194. SE 015 195. and SE 015 196. (DT)

60

S



### GRAPHING AND **FUNCTIONS**

ED 183 412

Dawson, Evelyn And Others Travel. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver. Colo.

Spons Agency—National Science Foundation,
Washington, D.C.

Pub Date—73
Grant—NSF-GW-7720
Note—111p: For related documents, see SE 030 304-322

Pub Type—Guides - Classroom · Learner (051) —
Guides - Classroom · Teacher (052)
EDRS Price · MF01/PC05 Plus Postage.
Descriptors—Activities. Graphs. Learning EDRS Price - MF01/PC05 Plus Postage.

Descriptors—Activities, "Graphs, "Learning Laboratories, "Map Skills, Mathematical Applications, Mathematics Curriculum, "Mathematics Instruction, Secondary Education, "Secondary School Mathematics," Travel, Vorksheets

This module is primarily designed to focus on two

main areas: graphing and map reading. Graphing entails the use of bar, line, and circle graphs, the x and y axes, the coordinate plane, and oldered pairs. Map reading includes conversion tables, approximations, devising scales, and learning to refold a folding r. 1p. (Author/MK)

1391 ED 173 152

Allen. Frank B. And Others

Mathematics for Filgn School, Elementary Functions (Part 2). Commentary For Teachers.

Preliminary Edition.

Stanford Univ., Calif School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—60 Note—177p. For related documents, see SE 028 246 and ED 135 630; Contains occasional light and broken type

and broken type
Pub Type — Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC08 Plus Postage.

Descriptors—\*Algebra, Curriculum, \*Curriculum Guides, \*Instruction, Mathematics Education, Secondary Education, \*Secondary School Mathematics, \*Trigonometry

Identifiers—\*Functions (Mathematics), \*School Mathematics Study Group
This is part two of a two-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to the exercises, and a set of illustrative rest questions.

the exercises, and a set of illustrative test questions. Chapter topics include exponential and logarithmic functions and circular functions. (MP)

ED 173 151 Allen. Frank B. And Others

Mathematics for High School, Elementary Functions (Part 1). Commentary for Teachers. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation. Washington, D.C. Pub Date—59

Note—178p.; For related documents, see SE 028 247 and ED 135 630

24/ and ED 135-630
Pub Type— Guides - Classifier (Ceacher (052)
EDRS Price - MF01/PCDP Pile Postage.
Descriptors— \*Algebra, Countries in, \*Curriculum Guides, \*Instruction, \*Secondary Education, \*Secondary School Mathematics. \*Set Theory
Identifiers— \*Functions (Mathematics), \*School Mathematics Study Group.

Mathematics Study Group

Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG high school text materials. Each chapter contains a commentary on the text, answers to exercises, and a set of illustrative test questions. Chapter top-1, s include sets, relations and functions, polynomial functions, and algebra of polynomial functions. (MP) functions. (MP)

1303 ED 168 872

Classroom Aids for Mathematics, Volume 1: Polynomials.
Eastern Washington State Coll., Cheney.

Pub Date-[78]

Note—23p.
Pub Type— Guides - Classroo. Learner (051)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—\*\*College Mathematics. \*\*Graphs.
Higher Education. \*\*Instruction.\*\* Instructional

Materials, Mathematics, \*Problem Sets, \*Transparencies
Identifiers—Polynomials

The goal of this pamphlet is to provide instructors of various scientific disciplines with mathematically accurate graphs of elementary polynomial func-tions. The figures in this pemphlet are intended to provide suitable material for the preparation of classroom handouts and overhead transparencies. In addition, sample—ts of exercises are provided for each figure. Grid lines are provided on all graphs for convenience in working with problems related to translation of axes. Each graph has the same scaling on the X and Y axes to make it easier to interpret the slope of any curve. (MP)

1304 ED 143 541

Bolduc, Eiroy J., Jr. And Others
Mathematics Through Science, Part III: An Experimental Approach to Functions, Teacher's Commentary, Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation.

Washington, D.C.
Pub Date—64
Note—169p.; For related documents, see SE 023
015-019; Not available in hard copy due to mar-

olf-olf: Not available in hard copy due to marginal legibility of original document Pub Type—Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Descriptors—\*Algebra. Grade 9. \*Mathematical Applications. \*Physical Sciences. Secondary Education. \*Secondary School Mathematics. \*Teaching Guides. ing Guides

Identifiers-School Mathematics Study Group

The purpose of this project is to teach learning and understanding of mathematics at the ninth grade level through the use of science experiments. This part of the program contains significant amounts of material normally found in a beginning algebra class. The material should be found useful for classes in general mathematics as a preparation for enrollment in algebra the following term. In particular, the loaded beem experiment introduces negative numbers, opposites, absolute values and addition of signed numbers. The number generator experiment vields ordered pairs; when graphed, the equation of a line and its slope are determined. The falling sphere experiment gives the same kind of data but also requires the fitting of a "best" straight line. The quadratic function is approached through three experiments: the wick, horizontal metronome, and oscillating spring. Finally, the idea of tangents and slope of a curve are developed through the inclined plane, the lens, and floating magnet - with need found for translation of axes. Included in the Teacher's Commentary are background information, discu of activities and exercises, and answers to problems. (RH)

1305 ED 143 540

Bolduc, Elroy J., Jr. And Others

Mathematics Through Science, Part III: An Experimental Approach to Functions. Student Text. Revised Edition.

Stanford Univ., Calif. School Mathematics Study

Group.
Spons Age: -Na
Washington, D.C. -National Science Foundation.

Pub Date—64
Note—169p.: For related documents, see SE 023
015-020; Contains occasional light and broken

Pub Type-- Books (010)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors—\*Algebra. Grade 9: \*Instructional Materials. Mathematical Applications. \*Physical Sciences. Secondary Education. \*Secondary School Mathematics. \*Textbooks

Identifiers—\*School Mathematics Study Group

The purpose of this root is to teach learning and understanding of mat. maties at the ninth grade level through the use of science experiments. This text contains significant amounts of material normally found in a beginning algebra class. The material should be found useful for classes in general mathematics as a preparation for enrollment in alge-bra the following term. Chapters in the text include: (1) An Experimental Approach to the Real Numbers: (2) An Experimental Approach to Linear unctions: (3) The Falling Sphere: (4) An Experimental Approach to Nonlinear Functions; and (5) Analysis of Nonlinear Functions. (RH)

1306

ED 143 539

Bolduc, Elroy J. Jr. 4nd Others Mathematics Through Science, Part II: Graphing.

Equations and Linear Functions. Teacher's Commentary. Revised Edition.

Stanford Univ., Calif. School Ma. lattes Study Group.

Spons Agency National Science Foundation, Washington, D.C. Pub Date 64

Note 112p., For related documents, see St. 623 015-020; Contains occasional light and broken

offso20; Contains occasional right and crossentype
Pub Type - Guides - General (050)
EDRS Price - MF01 - PC05 Plus Postage.
Descriptors - "Algebra, Junior High School Students, "Mathematical Applications, "Physical Sciences, Secondary Education, "Secondary School Mathematics, "Teaching Guides Identifiers - "School Mathematics Study Group The nurrous of this project is to teach learning and

The purpose of this project is to teach learning and understanding of mathematics at grades seven through nine through the use of science expenments. Previous knowledge of science on the part of students or teachers is not necessary. Lists of needed equipment are found at the beginning of this v...me. It is strongly recommended that teachers try each experiment before it is done in class. The material in this part of the program can be covered in four weeks. The material in this book and to develop the concepts of negative numbers, die basic properties of the real number system, linear functions, and quadratic functions. Included in the Teacher's Commentary are background information. discussion of activities and exercises, and answers to problems. (RH)

ED 143 538

Bolduc, Elroy J., Jr. And Others

Mathematics Through Science. Part II: Graphing. Equations and Linear Functions. Student Text. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date - 64 Note - 127p.; For related documents, see SE 023 015-020; Contains occasional light and broken type Pub Type - Books (010)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors—\*Algebra: \*Instructional Materials.

Junior High School Students, \*Mathematical Applications, \*Physical Sciences, Secondary Education, \*Secondary School Mathematics, Textbooks Identifiers-School Mathematics Study Group

The purpose of this text is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. The text is designed to be usable with any mathematics text-book in common use. The material can be covered in four weeks. Chapters in the text include: (1) Or in Sentences and Equations: (2) An Experimental Approach to Linear Functions; and (3) Trampolines and Gases. The appendices contain sections on graphing, scientific notation, and the metric system. A glossary is also included. (RH)

1308 ED 135 630 Allen, Frank B. and Others

Elementary Functions. Teach Commentary, Unit 22. Revised Edition. Stanford Univ., Calif. School Mathematics Study

Group.

Spons Agency—National Science Foundation. Washington, D.C.

Pub Date—65 Note—294p.; For related documents, see SE 021 987-022 002 and ED 130 870-877; Contains occa-

987-022 002 and ED 130 870-877; Contains occasional light and broken type
Pub Type— Guides - General (050)
EDRS Price - MF01/PC12 Plus Postage.
Descriptors—\*Curriculum, Elementary Secondary
Education. \*Instruction, Mathematics Education.
\*Secondary School Mathematics. \*Teaching Guides

Identifiers -- \*Functions (Mathematics). \*School Mathematics Study Group
This twenty-second unit in the SMSG secondary

school mathematics series is the teacher's commentary for Unit 21. For each of the chapters in Unit 21, a time allotment is suggested, the goals for that chapter are discussed, the mathematics is explained, some teaching suggestions are given, answers to ex-ercises are provided, and sample test questions are included. In the appendices, mathematical induetion is briefly discussed, then solutions to problems given in the appendices of Unit 21 are provided. (DT)

1309

ED 135 629

Allen, Frank B. And Others
Elementary Functions, Student's Text. Unit 21.
Stenford Univ., Calif. School Mathematics Study

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—61 Note—398p.; For related documents, see SE 021 987-022 002 and ED 130 8/0-877; Centains occasional light type

Pub Type—Books (010)

EDRS Price - MF01/PC16 Plus Postage.

Descriptors—"Curriculum, Elementary Secondary
Education, Instruction, "Instructional Materials. Mathematics Education. "Secondary School Mathematics." Textbooks
Identifiers—"Functions (Mathematics), "School Mathematics Study Group

Unit 21 in the SMSG secondary school mathematics series is a student text covering the following topics in elementary functions: functions, polynomial functions, tangents to graphs of polynomial functions, exponential and logarithmic functions, and circular functions. Appendices discuss set notation, mathematical induction, significance of polynomials, area under a polynomial graph, slopes of area functions, the law of growth. approximation and computation of e raised to the x power an approximation for In x, measurement of triangles, trigonometric identities and equations, and calculation of sin x and cos x. (DT)

1310

ED 127 187

Vogt. Elaine E. Ed.

Comparing Changes: MINNEMAST Coordinated Mathematics • Science Series, Unit 19. Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center.

Spons Agency—National Science Foundation.

Washington. D.C.

Pub Date—71
Note—172p.: For related documents, see SE021201-234
Available from—MINNEMAST, Minnemath Cen-For related documents, see

ter. 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type- Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.
Descriptors—"Curriculum Guides, Elementary
Education, "Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum, Graphs. \*Interdisciplinary Approach. Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, Units of Study Identifiers— MINNEMAST, Minnesota Mathematics— Minnesota— Minnesota— Minnesota— Mathematics— Minnesota— Minnesota—

ematics and Science Teaching Project

This volume is the nineteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second grade teachers, this unit guide provides a summary and overview of the unit. a list of materials needed, and descriptions of five groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud. and other instructional mater—Is are included in the book. The focus of this unit is on experimental activities related to the prediction and observation of change. One section is related to the growth of plants, a second to duration of time and clock reading, and a third to other functional relationships. The construction of graphs by plotting ordered pairs is introduced. The final section of the unit concerns the measurement of volume and weight. Also insluded is a bibliography listing related books and films. (SD)

1311

Cosler. Norma, Ed. Individualized Math Problems in Graphs and Tables. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math-Education Council. Salem.; Oregon State Dept. of Education, Salem. Career and Vo-)ate -74

Note—49p.: For related documents, see SE 020 628-648: Occasional Marginal Legibility Available from—Continuing Education Publica-

tions, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Graphs. Individualized Instruction. \*Instructional Materials, Mathematical Applica-tions, Mathematics Education, \*Problem Set. Se-condary Education, \*Secondary School Mathematics, Tables (Data), \*Vocational Educa-

Identifiers-Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. So-lutions are provided for all problems. Problems in-volving the construction and interpretation of graphs and tables are presented in this volume. These problems are drawn from five vocational areas: forestry, marketing, clerical work, diesel mechanics, and food processing. (SD)

## LOW ACHIEVERS

1400 ED 183 .... Finkelstein, Harry Math for Survival. Pub Date--[80] Note- 66p.

Pub Type - Guides - Classroom - Learner (051) --Numerical/Quantitative Data (110) EDRS Price • MF01/PC03 Plus Postage

Descriptors—Addition. Division. Fractions.

\*Learning Disabilities, Mathematics Curriculum. "Mathematics Instruction, Multiplication, Number Concepts, Problem Sets, Secondary Educa-tion, \*Secondary School Mathematics, \*Slow Learners, Subtraction, \*Textbooks, Whole Num-

This mathematics textdeveloped for use with slow learners and leadisabled students in secondary school, contains a chapters. Among the topics covered are: number words; place value; rounding whole numbers; addition, subtraction, multiplication, and division of whole numbers; reducing fractions; mixed numbers; lowest common denominator; comparing fractions; and addition, multiplication, and division of fractions and mixed numbers. Each chapter begins with the statement of an "aim" and a "method." (MK)

ED 182 108 Activity Oriented Materials Developed to Help the Low Achiever Attain Basic Mathematical Competencies.

Nebraska Univ., Lincoln.

Spons Agency—Na Washington, D.C. Pub Date—71 -National Science Foundation,

Pub Date-

Grant-NSF-GW-7296

Grant—NSF-GW-7296
Note—241p.: For related document, see SE 029
386; Not available in hard copy due to marginal
legibility of original document. Pages 178-180
missing from document prior to its being shipped
to EDRS for filiating; Best copy available
Pub Type—Guides—Classroom—Teacher (052)
EDRS Price—MF01 Plus Postage. PC Not Available from EDPS

ble from EDRS.

Descrit.ors—"Activity Units, Curriculum Development, Learning Activities, "Low Achievement, Mathematical Concepts, Mathematics Curriculum, "Mathematics Materials, Mathematics ics Teachers, Remedial Mathematics, Resource Materiais, "Resource Units, Secondary Education, "Secondary School Mathematics, Skills, Teacher Developed Materials, Units of Study

Mathematics units developed during a summer workshop are presented. The purposes of the workshop were to prepare qualified secondary teachers to teach mathematics to low achievers ar to collect, review, and develop new method, agies and materials for teaching the reluctant learner in mathematics. The units developed were designed to be used as supplementary materials and it was ndicated that individual teachers should feel free to adapt the units to fit local needs. The units were designed to help students achieve needed competencies that were suggested by a committee of the National Council of Teachers of Mathematics. Each unit includes a competency statement, instructional objectives, and two suggested activities. Twenty-seven competencies are listed. The number of instructional objectives for each competency varies from one to fourteen. Some of the suggested competencies are: (1) ability to perceive patterns displayed by means of sequences of specific instances; (2) use the standard algorithms for the operations of arithmetic of whose rational numbers; and (3) construct bisectors of lines and angles. (MK)

1402 ED 161 509

Spangler, Richard Mathematics: K-14. A Learning Center Approach at Tacoma Community College.

Pub Date-14 Oct 78

Note -27p.
Pub Type— Speeches/Meeting Papers (150)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—College Mathematics. Community Coll 75. \*Individualized Instruction, \*Learning Laboratories, Learning Resources Centers, \*Mathematics Instruction, Mathematics Materials. Mathematics Teachers, Open Education, Program Descriptions. Programed Instruction. Remedial Mathematics, "Tutorial Programs." Two car, Colleges

The mathematics learning center at Tacoma Community College (Washington) has three programs: an independent-tutorial study system, a stu-nt

tutorial system, and a basic arithmetic skills laboratory. Thirty independent-tutorial study mathematics courses, ranging from arithmetic to calculus, are available within the structure and control of the mathematics department. During the quarter, the student proceeds at his or her own rate of study using a commercially available active-involvement text. A student either completes the course by the end of the quarter or carns an incomplete grade which must be made up during the next quarter. The mathematics lab personnel consist of a faculty director assigned for three hours daily, instructors who diagnose exams and prescribe remedies for weaknesses, teaching assistants from universities, and clerks who administer and correct exams and keep all student records. The student tutorial service coordinates tutors and tutees without charge. The basic skills lab provides service to adults whose skill level in reading and arithmetic is below fifth grade. Results over seven years are seen in a reduced leeture class dropout rate, and in the doubling of the math student population without any increase in personnel. Advantages and disadvantages of the program are discussed and an appendix, containing a list of texts used, a floor plan of the lab, instructions for the independent learning modules, and sample student reminder cards, is included. (MB)

ED 146 011 Mathematics Modified General Program, Grades Seven, Eight, Nine. Curriculum Bulletin Number 113.

Cincinnati Public Schools, Ohio.

Pub Date-62 Note-211p: Not available in hard copy due to copyright restrictions; Contains occasional light and broken type
Available from—Clerk Treasurer, Cincinnati Public

Schools, 230 East 9th St., Cincinnati, Ohio 45202

(\$4.50)
Pub Type— Guides - General (050)
EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Basic Skills, \*Curriculum Guides. \*\*Scarptors—Basic Skins, Cunicarian Guiden, 
\*Instructional Materials, Junior His shools, 
Learning Disabilities, Low Achievem Mathematics Education, Secondary Education, Secondary School Mathematics, \*Study Guides, 
\*Worksheets

This curriculum bulletin contains materiais for students in grades 7, 8, and 9 who have learning difficulties. The first chapter discusses characteristics and needs of these students. Teaching procedures are briefly discussed in the second chapter. A suggested outline of content is followed by work-sheets or study guides for approximately 35 topics at each grade level. These are designed to be used ar the end of the instructional period to determine whether a concept has been taught successfully. Several resource units and games are also included. (MS)

Vennari, Brace Penniman, Terry L.
Quality Math Experiences.
Iowa Univ., Iowa City, Special Education Curricus on Development Center.
Spons Agency—Iowa State Decr.

Spons Agency—Iowa State Dept. of Public Instruc-tion, Des Moines.

Pub Date-Jan 72

\*Mentai Retardation, Money Management. \*Teaching Methods, Time

Presented are teaching methods for the instruction of mathematics to mentally retaided children. Although the ideas are developed from simple to complex, there is no attempt to correlate mathematical ideas with grade levels. The general stated philosophy is that the retarded child learns best by experiencing and finds satisfaction and reinforcement in successful endeavors. Guidelines for the instruction of fundamental operations in mathematics cover addition, multiplication, subtraction, and division. The use of a number line in addition and the teaching of multiplication after addition and before subtraction are advocated. The number line is also advocated in the teaching of subtraction and division. The section on the teaching of time tocludes many sample work sheets that may be helpful in the sequential presentation of time-related concepts. The chapter on teaching of measurement emphasizes that the teaching of measurement will be augmented if many play activities requiring use of

measuremen techniques accompany the instruction. The last instructional section concerns money and emphasizes that children need to have many experiences handling real money under supervision Suggested fearning sequences, activities, and termdorcements accompany the sections on measurement, time, and money (CB)

1405 ED 055 848

Nicholson, Alan I.

Developing Programs for Slow and Disenchanted Learners of Mathematics.

Montana State Dept. of Public Instruction, Helena Pub Date

Note: 185

EDRS Price + MF01 PC01 Plus Postage.
Descriptors Curriculum. Elementary Mathematics, \*Laboratories, \*Low Achievement, Mathematical Enrichment, \*Mathematics Education, Reinedial Programs, Secondary School Mathematics, \*Slow Learner

This document is a source book for those who see the need to provide more meaningful mathematical experiences for students who have experienced little or no success in traditional programs. It is in four parts. In the first part, three innovative general mathematics projects are described. The second part outlines the mathematics laboratory approach, lists four books on the topic and gives some sources of activity packages, mathematical games and other equipment. The third part describes six courses for slow achievers which are available commercially. and the last part is a select hibliography on the low achiever. (MM)

1406 ED 053 980

Travers, Kenneth J. And Others

Teaching Resources for Low-Achieving Mathematics Classes.

ERIC Information Analysis Center for Science Education, Columbus, Ohio.

Pub Date: Jul 71

ote--66p.

Note: -oop.

EDRS Price - MF01 PC03 Plus Postage.

Descriptors: - Bibliographics. Elementary School Mathematics, Laboratory Techniques, Low Ability Students. \*Low Achievement. \*Mathematics Education. \*Resource Materials. Secondary School Mathematics. Student Champiography School Mathematics, Student Characteristics,

\*Teaching Methods
This paper reviews teaching approaches and ger eral resource materials for low achievers in both elementary and secondary mathematics classes. A survey of reported characteristics of low achievers is divided into two classes. (!) social and emotional problems, and (2) learning concluties. Characterisbes related to class I problems include: high rate of absence, goals for the immediate future only, low motivation, antisocial behavior, short interest span. and inability to see the practical use of mathematics. Characteristics related to class 2 problems include a record of failure in mathematics, a fear of the subject, achievement scores at least two years below grade level, reading difficulties, inability to follow directions, tendency to leap to conclusions, and ina-bility to generalize. Teaching approaches which have been reported as being successful include the use of computational aids, manipulative devices, and laboratory techniques. Also reported was the development of individualized short-term cur-riculum units, emphasizing success and immediate reward. The two bibliographies included are: (1) a bibliography of general resource material and (2) an annotated bibliography of articles which have ap-peared in "The Arithmetic Teacher" and "The Mathematics Teacher" which suggest lessons for low achievers. (RS)

1407 ED 052 580 Resource Aid of Selected Materials for Remediation of Learning Disorders.

Boston Univ., Jass. New England Materials In-

struction Cente. Spons Agency - Bureau of Education for the Hand-icapped (DHEW OE), Washington, D.C. Pub Date -- 71

Note--203p.

Note--203p.

Available from - Boston University Bookstore, Special Services Desk, 775 Commonwealth Avenue, Boston, Massachusetts 02215 (\$4.00)

EDRS Price - MF01 -PC09 Plus Postage.

Descriptors - Diagnostic Tests, \*Exceptional Child Education, \*Instructional Materials, \*Learning Disabilities, Mathematics, Reading Difficulty, Reading Materials, Remedial Instruction, \*Resource Materials

The resource suide helps formulate disception.

The resource guide helps formulate diagnostic

profiles for children with specific learning disabilities, analyzes subset, of well-known batteries, and classifies materials to match areas of strength and weakness in learning. An adaptation of the Osgood model is used to identify and order the component abilities in learning. These component abilities are related to the curriculum areas of language arts and machine sties. In the Perceptual-Motor Chart, conbart I, there are four columns, the first her and orders the component abilities in the rocess, the second suggests particular 15 cl and rests to indicate the strength or weakness of that particular function, the third suggests remedial cructional materials, and the fourth cosett agant for teacher's evaluation of the diagnostic prescription. Curriculum ng, spelling, handwriting, and mathifeli are apresented in the chart, Part 2 presents appearance content, and purpose information alphabetically listed tests and remedial tier instruction nal materials. Part 3, in addition to giving bibliographic information on available mathematics materials, contains analyses of mathematics skill areas and concepts to promote better understanding of the rationale of the instructional materials. (KW)

ED 050 979 Mathematics for Basic Education, Grade 10, A Tentative Guide.

Baltimore County Public Schools, Towson, Md. Pub Date—Sep 67

Note-321p EDRS Price - MF02/PC13 Plus Postage.

Descriptors—Behavioral Objectives, \*Curriculum Guides, \*Grade 10, Instruction, Low Ability Students, \*Maillematics Education, Secondary School Marken utics, \*Slow Learners, Worksheets

This cur: Suide is specifically designed for the slow learning students in grade 10. It is one of a series of course guides for graces 6-11. The intent of the curricular designers was to outline mathematical experiences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations and algorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic. Each content area contains: 1) master charts for grades 6-11, 2) grade level chart for grade 10, 3) behavioral objectives for the area, 4) teacher commentary sheets. 5) student worksheets. A collection of recreational activities is included for student motivation. (RS)

1409 ED 050 978

Helwig, G. Alfred Brant, Vincent Mathematics for Basic Education, Grade 9. Baltimore County Public Schools, Towson, Md.

Pub Date-Sep 67 Note-381p.

Available from-Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204

EDRS Price - MF03/PC16 Plus Postage.
Descriptors -- Algebra, \*Curriculum. \*Curriculum

Guides, Educationally Disadvantaged, Geometry, Logic, Probability, \*Secondary School Mathematics, \*Slow Learners, Statistics

This guide provides a structured program for the slow learner in mathematics grades 6-11. Suggestions for implementing the program are included.

The guide is divided into the following major areas of mathematical competency: Fundamental Opera-tions, Geometry, Measurement, Graphing, Algebra, Probability and Statistics, and Logic, Recreation is the last section of the book. Each of the areas of mathematical competency contains; master chart of mathematics content, grade level chart of math-ematics content, list of behavioral objectives, and student activity descriptions and materials. This curriculum guide is one of several prepared for secondary school mathematics instruction by Baltimore County Public Schools. (JG)

ED 050 977 Mathematics for Basic Education, Grade 8, A

Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date Sep 67
Note-383p
EDRS Price - MF03 PC16 Plus Postage.
Descriptors Behavioral Objectives, Course Contents

tent, \*Curriculum Guides, Elementary School Mathematics, \*Grade 8, Instruction, Low Ability Students, \*Mathematics Education, \*Slow Learnars. Workshoots

This curriculum guide is specificall, designed for

the slow learning students in grade 8. It is one of a series of course guides for grades 6-11. The intent of the curricular designers was to outline mathematical exp-riences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations, and algorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic, Each content area contains, 1) master charts for grades 6-11, 2) grade ...el chart for grade 8, 3) behavioral objectives for the area, 40 teacher commentary sheets, 5) student worksheets. A collection of recreational activities is included for student motivation. (RS)

ED 050 976 Mathematics for Basic Education, Grade 7, A

Tentative Guide.
Baltimore County Public Schools, Towson, Md.
Pub Date "Sep 87

Note:= 393p.

EDRS Price - MF03/PC16 Plus Postage.

Showing a Objectives, Court

Descriptors-Behavioral Objectives. Course Content, \*Curriculum Guides Elementary School Mathematics, \*Grade 7, Instruction, Low Ability Students, \*Mathematics Education, \*Slow Learners, Worksheets

This curriculum guide is specifically designed for the slow learning students in grade 7. It is one of a series of course guides for grades 6-11. The intent of the curricular designats was to outline mathematical experiences which would be appropriate for the characteristics of these students. The areas of mathematical content included are: 1) numbers, operations and aigorithms, 2) geometry, 3) measurement, 4) graphing, 5) probability and statistics, 6) algebra, 7) logic. Each content area contains: 1) master charts for grades 6-11, 2) grade level chart for grade (7, 3) behavioral objectives for the area, 4) teacher commentary sheets, 5) student worksheets. A collection of recreational activities is included for student worksheets. dent motivation. (RS)

ED 046 780

Allen, Charles And Others
Experiences in Mathematical Iceas, Volume 2. National Council of Teachers of Mathematics, Inc., Washington, D.C. Pub Date--70

Note-402p.

Available from-National Council of Teachers of Mathematics, 1201 16th St., N.W., Washington, D.C. 20036 (\$10.00) EDRS Price - MF03 Plus Postage, PC Noc Availa-

ble from EDRS.

Descriptors—Curriculum Development, \*Elementary School Mathematics, \*Instruction, \*Instructional Materials, \*Low Achievement, Mathematics Education, \*Secondary School Mathematics

Identifiers-National Jouncil of Teachers of Mathematics

This is volume 2 of a set of mathematics materials developed for low achievers. These materials are designed to help teachers provide interesting and worthwhile learning opportunities for students in grades five through eight who have had little success in mathematics. The materials may be used in con-ventional classroom settings as well as in team teaching, multi-unit programs, and other organizational structures. The units are not designed to be used as a complete mathematics program for low achievers, but ruller as representative segments of achievers, but raiver as representative segments of mathematics raid by all students. A teaching package, containing materials that are closely correlated with inavidual activities within each unit, is also included for this volume. Topics considered in this volume include: Tables and Change, Using Tibles to Solve Problems, Ratio, Graphs, Organizing Data, Dealing with Uncertainty, and Geometry (Author EI).

(Author FL) ED 046 712

Allen, Charles And Other: Experiences in Mathematical Ideas. National Council of Teachers of Mathematics, Inc. Washington, D.C.

Pub Date - 70

Pub Date 70

Note 340p., Vol. 1

Available from—National Council of Teachers of Mathematics, 1201 16th St. N.W., Washington, D.C. 20036 (\$10.00)

EDRS Price - MF02 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors—"Arithmetic, "Elementary School Mathematics, "Instruction, Instructional Materals, Mathematics, Numbers, Number Systems, \*Slow Learners, \*Teaching Guides

Developed by a committee of the National Council of Teachers of Mathematics, this publication is designed to help teachers provide interesting and worthwhile learning apportunities for slow learners in grades five through eight. It employs a variety of teaching strategies, many not commonly known or practiced, which are particularly helpful with slow earners. In particular, the activities suggested one of a "laboratory nature" and encourage participation by all students. The subjects covered include base and place value, renaming numbers in addition and subtraction, physical models for multiplication, units of measure, physical models for fractions, and physical models for decimals. Most of the units are independent of the others and need not be taught in any specified order nor as specified grade levels. The volume includes a "Tenening Package" containing materials which can be duplicated by the teacher for use as overhearls, worksheets, or laboratory materials (Author CT)

Planning an Arithmetic Curriculum for the Educa-ble Mentally Retarded, Special Education Cur-riculum Development Center: An In-Service Training Program.

lowa Univ., Iowa City Special Education Cur-nealum Development Center

Spons Agency Towa State Dept of Public Instruc-Spois Agency (Was acte Dep. of Funit Instruc-tion, Des Moines; Office of Education (DHEW), Washington, D.C. Bureau No. BR-6-2883-7 Pub Date. Nov. 68 Grant. (OEG-3-7-602883-6499)

Note - 144p

EDRS Frice - MF01 PC06 Plus l'ostage.

Descriptors: \*Curriculum, Curriculum Guides, Elementary School Students, \*Exceptional Child Education, Mathematical Applications, Mathematical Concepts, Mathematical Models, \*Mathematical Mid Mental Retardation, Money Management, Secondary School Students, Sequential Learning, \*Teaching Methods, Time

The guide, intended as a model for teachers who will develop their own arithmetic curricular materials, introduces concepts sequentially from simple to complex and continues them from one level to the next at increasingly more difficult and abstract levels. The program is arbitrarily out into four levels to correspond to school divisions: primary (ages 6 to 9), intermediate (ages 9 to 12), junior high (ages 12 to 14), and senior high (ages 14 to adulthood) which is oficited to job requirements and money management. It presents concepts or skills to be developed. suggests teaching methods and aids, and indicates practical ways for students to use these concepts and skills. Three sample units present 10 to 14 lessons on the personal approach to numbers (primary level), time (intermediate level), and checking account procedures (senior high level) (LE)

ED 025 437

Zimmerman, Joseph

Central Iowa Low Achiever Mathematics Project - ESP.

Central Iowa Low-Achiever Mathematics Project, Des Moines.

Spons Agency Office of Educa on (DHEW), Washington, D.C. Bureau of Elementary and Se-condary Education Office of Educa on (DHEW),

Pub Date [Nov 68] Grant - OEG-3965 Note 64p

Note 64p
EDRS Price - MF01 PC03 Plus Postage.
Descriptors Curriculum, Curriculum Development, \*Elementary School Mathematics, \*Instructional Materials, \*Low Achievement, \*Mathematics, \*Problem Solving, Secondary School Mathematics

Identifiers - Central Iowa Low Achiever Mathematics Project

The materials in this Enrichment Student Project (ESP) are designed especially for the low achiever student in mathematics. The booklet is a self-contained unit consisting of four elements a mathematical puzzle, a set of instructions, response sheets, and a suitable container for keeping the unit together ESP is a motivational idea aimed at attracting the student's interest and promoting his involvement in a portion of mathematics that can be enjoyed. The materials which have been collected for this ESP, complete with solution of problems for the teacher's convenience my, we beg, dissection, cube, and topology puzzles. This work was prepared



under ESEA Title III contract, (RP)

1416

ED 025 432

Casev. Ralph And Others

Central Iowa Low Achiever Mathematic: Project - Math in Sports.

Central Iowa Low-Achiever Mathematics Project, Des Moines.

Spons Agency-Office of Education (DHEW). Washington, D.C. Bureau of illementary and Secondary Educat ....

Pub Date-[Nov 58]

Grant-OEG-3965

Note--67p.

EDRS Price - MF01. PC03 Plus Postage.

Descriptors-Arithmetic, Grade 7, Grade 8, Grade 9. \*Instructional Materials. \*Low Achievement, \*Mathematics, Resource Materials, \*Secondary School Mathematics

Identifiers-Central Iowa Low-Achiever Mathematics Project

These materials are designed especially for the low achieving student in mathematics. The booklet contains numerous sports related exercises which have been prepared as examples of supplementary worksheets. The exercises are designed to take advantage of the student's interest in sports. Materials for this booklet, including the worksheets which are provided, draw on such sports as baseball, basketball, bowling, football, golf, tennis, and track. Mathematical skills emphasized are computational skills. decimals and percent, estimation and rounding off, and averaging numbers. This work was prepared under ESEA Title III contract. (RP)

ED 025 431

Nibbelink, William H.

Central Iowa Low Achiever Mathematics Project · Measurement.

Central Iowa Low-Achiever Mathematics Project, Des Moines.

Spons Agency-Office of Education (DHEW). Washington, D.C. Bureau of Elementary and Secondary Education.

Grant-OEG-3965

Note-88p.

EDRS Price - MF01/PC04 Plus Postage.

Descriptors-Arithmetic, Curriculum, Grade 7. Grade 8. Grade 9. Instruction, \*Instructional Materials, \*Low Achievement, \*Measurement, Secondary School Mathematics

Identifiers-Central Iowa Low-Achiever Mathematics Project

Developed in these materials is a concept of measurement. The unit begins with a fictitious system of measurement from which basic ideas about measurement are to be retained and later applied to other systems of measurement. It is hypothesized that it is easier for the student to abstract principles from a less tangible and unfamiliar system than from an endless sequence of systems. The initial contact with measurement is also made more exciting and entertaining than can be accomplished by a discourse on yards feet, and inches. Several parts of this unit are conventional in approach. This work was prepared under ESEA Title III contract. (RP)

ED 021 732

Foley, Jack L

Events and Chance.

Pub Date---Aug 67

Note-15p.

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Arithmetic, Curriculum, \*Curriculum Development, \*Elementary School Mathematics. \*Instructional Materials. Low Ability Students, Mathematics, \*Probability, \*Secondary School Mathematics. Statistics

Identifiers—Elementary and Secondary Education Act Title III

This booklet, one of a series, has been developed for the project. A Program for Mathematically Underdeveloped P A project team, including inservice teach ing used to write and develop program. The materials devethe materials ... loped in this . include (1) the meaning of aing outcomes. (3) mitually exprobability.(2)\_ clusive outcomes, and (4) independent autcomes

ED 020 897

FOLEY, JACK L
ACTION WITH FRACTIONS. ADDITION
AND SUBTRACTION.

Pub Date—AUG67 Note = 34P. EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Addition, \*Arithmetic, \*Elementary School Mathematics, Extracurricular Activities. Fractions, \*Instructional Materials, Low Ability Students, \*Mathematics, Subtraction

Identifiers Elementary Secondary Education Act

Title III THIS BOOKLET. ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UN-DERDEVELOPED PUPILS. A PROJECT PROGRAM FOR MATHEMATICALET COMBER PROJECT DERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (I) NUMBER RELATIONSHIPS. (2) "QUIVALENT FRACTICNS. (3) ADDITION AND SUBTRACTION OF RATIONAL NUMBERS, (4) "LEAST COMMONDENOMINATORS, AND (5) SUPPLEMENTARY ACTIVITIES WITH RATIONAL NUMBERS. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER. TECHNIQUES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP) MATERIALS. (RP)

JUNIOR HIGH SCHOOL STUPENTS.
Central lowa Low-Achiever Mathematics Project.

Des Moines.

Pub Date-67 Note-97P.

Identifiers—CENTRAL IOWA LOW-ACHIEVER MATHEMATICS PROJECT THIS PAPER, CONSISTING OF A COLLEC-TION OF MATHEMATICS TEACHING IDEAS AND STUDENT ACTIVITIES, IS A COMPILA-TION OF THOSE FOUND TO BE MOST EF-FECTIVE BY THE CONTRIBUTING TEACHERS IN THE 1967-68 CENTRAL IOWA LOW-ACHIEVER MATHEMATICS PROJECT.
THE ACTIVITIES DESCRIBED IN THIS PAPER ARE INTENDED FOR JUNIOR HIGH
SCHOOL STUDENTS WITH VARYING DEGREES OF COMPETENCE IN MATHEMATICS. INCLUDING THOSE STUDENTS
CLASSIFIED AS LOW ACHIEVERS. (RP)



# MEASUREMENT

1500 ED 183 405 Sigurdson, Orville 4nd Others

Area. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics. Denver. Coic.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date- 73

Grant-NSF-GW-7720

Note-61p.; For related documents, see SE 030 304-322; Contains occasional light and broken

Pub Type- Guides - Clast from - Learner (051) -

Guides - Classroom - Teache: (052)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—\*Activities. Calculators, Geometric Concepts, \*Learning Laboratories. Manipulative Materials, Mathematical Formulas, Mathematics Curriculum, \*Mathematics instruction, \*Mees-urement, Secondary Education, \*Secondary School Mathematics, Worksheets

Identifiers-Area

This area package emphasizes three facets: (1) the concept of area as a covering; (2) the square unit; and (3) formula development. There are two enrichment activities included. The tirst requires the aid of a programmable calculator or computer. (Author/MK:

1501 ED 183 399

Trojan, Am Zastrocky, Mike

People Patterns: Measurement. Environmental Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver, Colo.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—73 Grant—NSF-GW-7720

Note-19p.: For related documents, see SE 030 304-322

Pub Type- Guides - Classroom - Learner (051) -Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—"Activities. Elementar, School Mathematics, Elementary Secondary Education. Graphs. \*Learning Laboratories. Mathematics Curriculum. \*Mathematics Instruction. \*Measurement. Metric System. \*Secondary School Mathematics, Statistics, Worksheets Identifiers—\*Estimation

This module, concerned with measurement, provides a series of 12 worksheets that allow students to: compare their ability to walk and run to heir physical attributes, play a game that involves various senses and measurements, and be grouped by various means and then compare the groups with certain measurements. Teaching suggestions are provided. (MK)

ED 179 348 Resource Guide to Applied Basic Skills - I. Linear. Activity Booklet I: Quantitive.

Georgia Univ., Athens Center for Educational Improvement.

Speas Agency--Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.; Georgia State Dept. of Education. Atlanta.

Pub Date-[78] Note-117p.; For related documents, see SE 026 833-837. Not available in hard copy due to mar-

ginal legibility of original document Pub Type--- Guides - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Elementary Secondary Education. Instruction. \*Instructional Materials. \*Learning Activities, \*Mathematics Education. \*Measurement, \*Objectives, Primary Education, \*Skill Development

This activity booklet contains activities related to the skill category of linear measurement. cor each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded. with the easier tasks appearing first. (MP)

1503 ED 179 345 Resource Cuide to Applied Basic Skills - F. Volume. Activity Bookic 1: Quantitive.

Georgia Univ., Athens. Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW.OE), Washington, D.C.; Georgia State Dept. of Education, Atlanta.
Pub Date—[78]

Note—140p.; For related documents, see SE 026 833-838; Not available in hard copy due to mar-

ginal legibility of original document Pub Type — Guider - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors--Elementary Secondary Education.

Geometric Concepts, Instruction. "Instructional Materials. "Learning Activities, "Mathematics Education. "Measurement. "Objectives. Primary Education. "Skill Development

This activity booklet contains activities related to the skill category of volume. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded, with the easier tasks appearing first. (MP)

ED 179 344 Resource Guide to Applied Basic Skills . B. Calendar Time. Activity Booklet I; Quantitive. Georgia Univ., Athens. Center for Educational Improvement.

providential proposed and providential proposed proposed (DHEW/OE). Washington. D.C.; Georgia State Dept. of Education, Atlanta. Spons Agency-

Pub Date—[78]
Note—42p.: For related documents, see SE 026
833-838; Not available in hard copy due to mar-

ginal legibility of original document Pub Type— Guides - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Secondary Education.
Instruction, \*Instructional Materials, \*Learning Activities, \*Mathematics Education. \*Measurement, Objectives, Primary Education. \*Skill Development. \*Time

This activity booklet contains activities related to the skill category of calendar time. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded. with the easier tasks appearing first. (MP)

ED 179 343 Resource Guide to Applied Basic Skills - A. Clock Time. Activity Booklet I: Quantitive.

Georgia Univ., Athens. Center for Educational Improvement.

Spons Agency—Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.;
Georgia State Dept. of Education, Atlanta. Pub Date-[78]

Note—53p.: For related documents, see SE 026
834-838; Not available in hard copy due to marginal legibility of original document
Pub Type—Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.

Descriptors—"Curriculum Guides, Elementary Secondary Education, "Instruction, "Learning Activities, "Mathematics Education, "Objectives, Primary Education, "Time

Activities related to the skill category "clock time" are given. For each objective, three levels of activities are given, primary, elementary-middle, and secondary. Enrichment activities are also provided. (MP)

Borelli, Michael L. Morelli, Sandra Z.

Teaching Measurement to Children: Grades K-6.

Revised Edition.

Cortland-Madison Board of Cooperative Educational Services, Cortland, N.Y.

Spons Agency—New York State Education Dept.,

Albany

Pub Date-78

Pub Date—78
Note—86p.
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors—Behavioral Objectives. "Curriculum Guides. Elementary Education. "Elementary School Mathematics, "Instruction, "Measurement. "Teaching
Objectives are listed describing the progression which students follow in learning to measure. These

which students follow in learning to measure. These

objectives follow a sequence that corresponds closely with the intellectual sequence found in students' learning. Grade-level recommendation charts follow the objectives. Topics dealt with are length, distance, area, volume, capacity, mass, and temperature. For each topic, non-numerical and numerical ineasurement objectives are listed. (MP)

ED 160 381 Experimental Teaching Unit: Second Grade Math-

Far West Lab. for Educational Research and Development, San Francisco, Calif Pub Date = 74

Note: 64p.; For related document, see SE 024 894; Pages 113-116 missing from document prior to its being shipped to EDRS for filming: Best copy available; Contains occass hal light and broken

Available from- Far West Laboratory for Educational Research & Development, Teacher Educa-tion Div., 1855 Folsom Street, San Francisco, California 94103 (no price quoted)
Pub Type — Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors — Elementary Education, \*Elementary

School Mathematics, Elementary School Teachers, \*Instructional Materials, \*Learning, \*Measurement, \*Metric System, \*Teaching Guides, Units of Study

The purpose of this unit is to develop basic concepts of measurement. The children will have a variety of experiences which make measurement concepts meaningful to them. This unit will provide some review of counting skills and simple addition and subtraction skills. The primary focus, however, is to build concepts of measurement in length, weight or mass, volume or capacity, and area; and extend them into a simple introduction to the metric system. Activities in each subtopic of this unit sug-gest ways to accomplish that. The subtopics are: comparisons, ordering, conservation, arbitrary units of measuring, and standard units of measuring. (Au-

1508 ED 143 555

Blakers, A. L. Studies in Mathematics, Volume XVII, Mathematical Concepts of Elementary Measurement. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date—67 Note—427p.; For related documents, see SE 023 028-041; Contains occasional light and broken

type
Pub Type— Books (010)
EDRS Price - MF01/PC18 Plus Postage.
Descriptors - Arithmetic, Inservice Education, \*Instructional Materials, Mathematical Applications, 
\*Measurement, \*Number Concepts, \*Secondary 
School Mathematics, \*Textbooks

Identifiers-\*School Mathematics Study Group The objective of this book is to identify those mathematical concepts which are relevant to elementary measurement, and to exhibit their logical interrelationships. The book was written with high school mathematics teachers in mind, but it is hoped that it will be useful also to elementary school teachers, science teachers, and college teachers. The book could be useful as a text for an advanced undergraduate course, or as an inservice course for teachers. The mathematical background required is approximately that which is included in a good high school education. Sections in the book include: (1) Measurement and Measure Functions; (2) The Measurement of Numerosity and Length; (3) The Measurement of Angles, Area, and Volume; and (4) Measurement and Dimension. A list of references conclude the publication. Each section includes background information, discussion of concepts, some suggestions for instruction, and exercises. (RH)

1509

Bolduc, Elroy J., Jr. And Others

Mathematics Through Science, Part I: Measure-ment and Graphing, Teacher's Commentary, Revised Edition.

Stanford Univ., Calif School Mathematics Study Group.

Spons Agency—National Science Foundation.
Washington, D.C.

Pub Date: 64 Note—109p.; For related documents, see SE 023 015-020; Not available in hard copy due to mar-



ED 127 180

groal legibility of original document

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Junior High School Students, Mathematical Applications, Mathematics, "Measurement, "Physical Sciences, Secondary Education, "Secondary School Mathematics, "Teaching Guides

Identifiers-\*School Mathematics Study Group

The purpose of this project is to teach carning and understanding of mathematics at grades seven through nine through the use of science experi-ments. Previous knowledge of science on the part of students or teachers is not necessary. Lists of needed equipment are found at the beginning of this volume. It is strongly recommended that the teacher try out each experiment before it is done in class. The experiments in part one involve basic measurements of length, mass, time, and temperature. The material can be covered in three or four weeks. Included in the Teacher's Commentary are background information, discussion of activities and exercises, and answers to problems. (RH)

1510 ED 143 536

Bolduc, Elroy J., Jr. And Others

Mathematics Through Science. Part I: Measurement and Graphing. Student Text. Revised Edi-

Stanford Univ., Canf. School Mathematics Study

Group.
Spons Agency+National Science Foundation, Washington, D.C.

Pub Date—64 Note—123p.: For related documents, see SE 023 016-020

Pub Type-- Books (010)

EDRS Price - MF01/PC05 Plus Postage.
Descriptors— Instructional Materials, Junior High School Students, Mathematical Applications, Mathematics, \*Measurem\_nt, \*Physical Sciences, Secondary Education, \*Secondary School Mathematics ematics. Textbooks

Identifiers--- School Mathematics Study Group

The purpose of this text is to teach learning and understanding of mathematics at grades seven through nine through the use of science experiments. Previous knowledge of science on the part of students or teachers is not necessary. The text is designed to be usable with any mathematics text-book in common use. The material can be covered in three or four weeks. Chapters in the text include: (1) Introduction to Measurement; (2) Length and the Number Line; (3) Relations, Functions, and Graphing; and (4) The Linear Function. Included in the book is a glossary of terms. (RH)

ED 137 173

Tomich. John G. Gilray. Jumes G.
Money-Go-Round: A Self Teaching Program. Pub Date-73

Pub Date—/3
Note—34p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Answer Keys. \*Autoinstructional Aids. Concept Teaching, Consumer Education, Course Descriptions, Curriculum. \*Economics Education Flementary Secondary Education.

Education, Elementary Secondary Education. Grade 4, Grade 5, Grade 6, \*Inquiry, \*Monetary Systems, Money Management, Objective Tests, 
Programed Instructional Materials, Questioning Techniques, Social Studies, Teaching Methods

The self-instructional program is designed to give students in grades 4-6 new insights into the concept of money. By using the programmed learning material the students become acquainted with the evolution of money through questioning techniques. Students explore the concepts of barter, token money, coins, paper money, and checks. The paper contains a program description, student instructions for answering the questions and checking for correct responses. the Money-Go-Round Self Teaching Program, a test, and an answer key. The study of money is logically and progressively sequenced and is completely self-contained. Learning is broken down into small, graduated steps that facilitate successful responses, and reinforcement is provided throughou; by frames that review previously taught concepts. Supplemental relevant information, such as the life pan of a piece of paper money and the weight problems engendered by large numbers of coins, is often included in the answers to frames. A final test and complete answer key conclude the document. (Author DB)

1512 ED 127 196

Ihrig. Elizabeth A., Ed.

Mapping the Globe, Transformations: MIN-NEMAST Coordinated Mathematics - Science Series, Unit 28.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date -- 71

Note—167p.; For related documents, see SE021201-775 Photographs may not reproduce well: Trans icies at the end of the document were removial due to poor reproducibility

Available from -- MINNEMAST, Minnemath C ter, 720 Washington Ave., S.E., Minneapolis, M.N. 55414

Pub Type--- Guides - General (050) EDRS Price · MF01/PC07 Plus Postage.

Descriptors-\*Curriculum Guides, Elementary Education. \*Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum. \*Interdisciplinary Approach, Learning Activities, Maps. Mathematics Education, Primary Education, Process Education, Science Education, Topology, \*Transformations (Math-

ematics), Units of Study identifiers—\*MINNEMAST, \*Minnesota Mathematics and Science Teaching Project

This volume is the twenty-eighth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for iei ding aloud, and other instructional materials are included in the book. This unit begins by distinguishing between measurable and nonmeasurable properties of 2- and 3-dimensional objects. Topological transformations are then introduced using shadows, rubber sheets, and clay. Projective transformations are examined and used in the making of maps. (SD)

1514 ED 127 186

Davis, Edith R., Ed.

Scaling and Representation: MINNEMAST Coordinated Mathematics - Science Series, Unit 18. Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-71

Note-94p., For related documents, see SE021201-234; Photographs may not reproduce well

Available from-MINNEMAST, Minnemath Center. 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type- Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.
Descriptors—\*Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Elementary School Science, Engineering Drawing. Experimental Curriculum, Geometric Concepts, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, Primary Education, Process Education, Science Education, Units of Study

Identifiers--\*MINNEMAST. \*Minnesota Mathematics and Science Teaching Project

This volume is the eighteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers. this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of 12 lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit concerns the representation of objects, the use and construction of scale drawings and threedimensional models, and the use of instruments, (SD)

Kraby, James Rieff, Marilyn

Measurement with Reference Units: MIN-NEMAST Coordinated Mathematics - Science Series, Unit 12.

Mannesota Univ., Minne volis, Minnesota School Mathematics and Science Center

Spons Agency National Science Foundation, Washington, D C

Pub Date 71

Note 206p. For related documents, sec. SE021201-254, Photographs may not appoint a a cil

Available from MINNEMAST, Minnemast ter, 720 Washington Ave., S.E., Minneapoils, MN 55414

Pub Type Guides - General (1881)

EDRS Price - MF01 PC09 Plus Postage.

Descriptors - Curriculum Guides, Idementary

Education, - Elementary School Methomatics. \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Measurement. Primary Education, Process Education, Science Education, Units of Study

Identifiers- \*MINNEMAST, \*Minnesona Mathematics and Science Teaching Project

This volume is the twelfth in a series of 29 coordir ned MINNEMAST units in mathematics and conce for kindergarten and the primary grades. intended for use by sist-grade teachers, this unit pende provides a summary and overview of the unit. a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and disuession topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book This unit is concerned with measurement of length. area, volume, and time durations. After reviewing the comparison of objects in a previous unit, the idea of standard units is introduced; a variety of tools (e.g., paper clip chains, popsicle sticks, rulers) is used in measurement activities. The pendulum and a variety of clocks are used in activities related to time. (SD)

ED 127 173

Edmunds, Polly T. Schrankler, William J. Introducing Measurement: MINNEMAST Coordinated Mathematics - Science Series, Unit 5,

Minnesota Univ., Minneapolis, Minnesota Sch., 1 Mathematics and Science Center.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date -- 71

Note = 116p.: 1 SE021201-234 For related documents,

Available from -- MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN

Pub Type - Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors "Curriculum Onides, Elementary Education, Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities. Mathematics Education, Measurement, Primary Education, Process Education. Science Education, Units of Study

Identifiers--\*MINNEMAST, \*Minnesota Methematics and Science Teaching Project

This volume is the fifth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit. a list of materials needed, and descriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit presents activities related to measurement. Individual sections of the unit concern: (1) length, (2) :rea, (3) volume, and (4) time. In each section, the a tivities are concerned with companison of objects (or durations), and development of ideas related to ordering. A brief list of children's books related to measurement is included. (SD)



1517 ED 123 083

Cosler. Norma. Ed. individualized Math Problems in Volume. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem: Oregon State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date-74

Note-47p.; For related documents, see SE 020 628-548

Available from--Continuing Education Publica-tions, P.O. Box 1491, Portland, Oregon 97207 Pub Type-- Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.

Descriptors— Geometry, Individualized Instruction. Instructional Materials. Mathematical Applications. Mathematics Education. Problem Sets, Secondary Education, "Secondary School Mathematics. "Solid Geometry. "Vocational Education

Identifiers-Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this booklet require the computation of volumes of solids, and other related computations (density, surface area). Problems are drawn from scien vocational areas: construction, forest products, forestry, electronics, aviation mechanics, wood products, and wastewater technology. (SD)

1518 ED 123 076

Cosler, Norma, Ed.

Individualized Math Problems in Measurement and Conversion. Oregon Vo-Tech Mathematics

Oregon Math Education Council, Salem.: Oregon State Dept. of Education, Salem, Career and Vocational Education Section.

Note-97p; For related documents, see SE 020 628-648

Available from-Continuing Education Publications. P.O. Box 1491. Fortland. Oregon 97207
Pub Type— Guides • General (050)
EDRS Price • MF01 Plus Postage. PC Not Availa-

ble from FDRS.

Descriptors-Individualized Instruction, \*Instructional Materials. Mathematical Applications. Mathematics Education. \*Measurement. \*Problem Sets. Secondary Education. \*Secondary School Mathematics. \*Vocational Education Identifiers—\*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This volume includes problems involving measurement, computation of areas and volumes from linear measurements, and conversion from one measure system to another. The problems are drawn from eleven vocational areas: marketing, construction, forestry, forest products, clerical work, wood products, welding, electronics, agriculture, drafting, industrial mechanics, and nursing. Tables of conversion are included.

1519 E J 123 067

Casler, Norma, Ed.

Individualized Math Problems in Area. Oregon Vo-Tech Mathematics Problem Scts.

Oregon Math Education Council, Salem.: Oregon State Dept. of Education, Salem. Career and Vocational Education Section. Pub Date—74

Note-47p.; For related documents, see SE 020 628-648

Available from—Continuing Education Publica-tions, P.O. Box 1491, Portland, Oregon 97207

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors-Geometry, Individualized Instruction, "Instructional Materiais, Mathematical Applications, Mathematics Education, "Problem Sets, Secondary Education, "Secondary School Mathematics, "Vocational Education Identifiers—"Area, "Oregon Vo Tech Math Project

This is one of eighteen sets of individualized matics problems developed by the Oregon

Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. So-lutions are provided for all problems. This package contains problems related to measurement of area which arise in six vocational situations (construction, diesel mechanics, electronics, forestry, forest products, and drafting), (SD)

ED 113 193 Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 4. Measurement. Experimental Edition.

New York State Education De-Vibany, Bureau of Elementary Curriculum I opment.

Spons Agency -- Bureau of Elementary and Secondary Education (DHEW OE), Washington, DC Div. of Compensatory Education. Pub Date—[74]

Note-52p.: Related documents are SE 019 740-

Pub Type- Guides - General (050)

Descriptors—Elementary Education, \*Elementary School Mathematics. Guides. Instructional Materials. \*Laboratory Manuals. \*Maniputative Materials, Mathematics Materials, "Measurement, Teacher Developed Materials, "Teaching Guides

Identifiers-Elementary Secondary Edulation Act

This guide describes activities and materials which can be used in a mathematics laboratory approach to a basic mathematics program for grades 1-6. One-hundred thirteen activities peltaining to measurement concepts are described in terms of purpose, suggested grade levels, materials needed. and procedures. Some specific concepts include: linear measurement (33 activities), area and volume (31 activities), weight measurement (31 activities). measurement (18 activities), estimation. inequalities, equalities, graphing, comparisons, circumference, scale drawing, applications, similarity. non standard units, measure, counting, surface area. weight, density, indirect area measure, cost calculations, conservation, recording data, problem solving, time continuum, directionality, shadows and time relationships. Most activities utilize the English system of measurement, but many can be adap d to the metric system. The guide concludes with a list of selected manipulative materials for mathematics laboratory use. (JBW)

ED 094 996 Muckey, Roy Luce, Mariory

Mathematics for the Elementary School, Unit 18, Mapping.
Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center.

Spons Agency--National Science Forwashington D.C.

Pub Date-65

Note—68p. Pub Type— Guides - General (050) EDRS Price • MF01/PC03 Plus Postage.
Descriptors—Curriculum, • Elementary School

Mathematics, Experiential Learning, \*Geometric Concepts, Graphs, Instruction, \*Instructional Materials, \*Teaching Guides, \*Transformations

(Mathematics), Units of Study, Worksheets Identifiers—Functions (Mathematics), MIN-NEMAST, Minnesota Mathematics and Science

Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This unit provides students with an opportunity to discuss the need for scale drawings and the rein-niques used in their construction. Ctudents are introduced to the idea that one unit can represent another kind of unit. These ideas are used to build some initial concepts of function and lead into rational numbers via ratios. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

ED 094 984

Powell, Bonnie, Ed. And Others

Mathematics for the Elementary School, Unit 3, Measurement.

Minnesota Univ. Minneapous Minnesota School Mathematics and Science Center.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 65

Note: 54p.

Pub Type: Guides - General (050)

Descriptors - "Conservation" (Concept), "Curriculum, "Elementary School Mathematics, Experiential Learning, Instruction, "Instructional Materials, "Measurement, "Teaching Guides, Worksheets

Identifiers - MINNEMAST, "Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by it, emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concerns from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. Several of the activities outlines in this unit on measurement closely resemble some of the experi-ments conducted by Piaget in his original research The concepts presented include the principle that liquid volume is unchanged by the size or shape of its container and that a solid mass has the same displacement, regardless of its shape or form. The treatment of measurement is approached in comparative rather than absolute terms. The questions of "how much" and "how many" have been deferred until later and the usage of the terms "more than" and "less than" are presented. Worksheets and commentaries to the teacher are provide,, and additional activities are suggested. (JP)

ED 090 009

Thompson, Russ Fuller, Albert Basic Math I, Package 01-10, Measures.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of F<sup>1</sup> mentary and Secondary Education (DHEW G.), Washington, D.C. Pub Date -72

Pub Date: -72
Note: -43p; For related documents, see SE 017:553
through 561 and SE 017:563 through 575
EDRS Price: - MF01/PC02 Plus Postage.
Descriptors: - Geometric Concepts, Grade 9, Individualized Instruction, \*Instructional Materials,
 \*Measurement, Metric System, Objectives, \*Secondary School Mathematics, \*Teaching Guides,
 \*Tester. Tests

Identifiers Elementary ondary Education Act Title III. \*General M. natics

This teacher guide is , .... of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ±D 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short eriterion tests are in-cluded for each topic covered. Work in this package centers on measurement. Problems are presented for converting from one unit to another within a system and from the British system to the metric system. Area and volume measurement of various geometrical figures are also among the topic ered. This work was prepared under an ESEA III contract. (JP)

ED 075 232

Guerriero, Carl A. A Guide to Field Mathematics.

Pennsylvania State Dept. of Education, Harrisburg, Bureau of General and Academic Education Pub Date 72 Note -- 650

Note--65p.
EDRS Price - MF01/PC03 Plus Postage.
Descriptors - \*Experiential Learning, Instruction, Instructional Materials, \*Laboratory Procedur ., Manipulative Materials, \*Mathematical Applications, Mathematics Education, \*Measurement, \*Secondary School Mathematics

This muide includes a chapter on concepts related.

This guide includes a chapter on concepts related

to measurement, a chapter describing the various measuring instruments that are used in the field, and a chapter indicating realistic class projects using field instruments. Twenty-three plates contained in the publication are designed as masters to make transparencies for classroom instruction. A bibliography of 28 source books is included. (Author/DT)

ED 069 538

Measurement, Grades 4-6.

Halton County Board of Education, Burlington (Ontario).

Pub Date-[72]

Note-48p.

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum, Elementary School Mathematics, Experiential Learning, \*Geometric Concepts. Instruction, \*Instructional Materials. Intermediate Grades, Laboratory Procedures. Mathematics Education, \*Measurement, Workshects

This is a collection of mathematics laboratory activities related to the topics of linear and square measure. There are a number of experimental situations from which results may be generalized. Also included are worksheets, examples and discussion questions which are based on practical situations whenever possible. The materials are for student use and contain no comments for teachers. (LS)

1526

ED 063 123

Burns. James A.

Mathematics: Measurement Lab.

Dade County Public Schools, Miami, Fla. Pub Date-71

Note-30p.

EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Curriculum. Instruction, Instructional Materials, \*Laboratories, Mathematical Applications, Mathematics Education. Measurement, \*Secondary School Mathematics, \*Teaching Guides, Units of Study

Identifiers-Quinmester Program

This course is a laboratory approach to linear measurement, perimeter, circumference, area of square and rectangle, volume of rectangular solids. and fluid measurement. Applications include use of ruler, meter stick, thermometer, beaker, air gauge. geometric solids, and geoboards. After lists of overall goals, overall strategies, specific performance objectives, and scope, the guide gives suggested strategies, materials, and references for twelve units. Also included are sample test items and an annotated bibliography of state-adopted and other iextbooks. (MM)

1527

ED 033 031

Averages, Areas and Volumes: Cambridge Conference on School Mathematics Feasibility Study

Cambridge Conference on School Mathematics, Newton, Mass.

Pub Date--[69]

Note-32p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—\*Calculus, Elementary School Mathematics, \*Geometry, \*Instructional Materials, Concepts. \*Secondary School Mathematical Mathematics

Presented is an elementary approach to areas, columns and other mathematical concepts usually treated in calculus. The approach is based on the idea of average and this concept is utilized throughout the report. In the beginning the average (arithmetic mean) of a set of numbers is considered and two properties of the average which often simplify the arithmetic is noted. Averages are further used to solve a number of important practical problems - to find the work done in stretching a spring, the distance which a body dropped from rest falls in a given time, and the force against a rectangular dam. The volume of solids bounded by two parallel planes is determined by multiplying the distance between the planes by the average cross-sectional area. These volumes can be used to find the force on a dam of triangular or semicircular shape. It is believed that the procedures outlined in this document are sufficiently simple to be taught as early as grade 5. [Not available in hard copy due to marginal legi-bility of original document]. (RP)

1528 ED 020 890 FOLEY, JACK L. METRIC GEOMETRY LINEAR MEASURE. Pub Date-AUG67

EDRS Price - MF01/PC02 Plus Postage.

Descriptors— \*Arithmetic, \*Elementary School Mathematics, Geonetry, \*Instructional Materials, Low Ability Students, \*Mathematics

Identifiers—Elementary Secondary Education Act
Title III, MEASUREMENT STUDENT ACTIVITIES

TILE III, MEASUREMENT STUDENT ACTIVITIES
THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM. THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (1) THE HISTORY AND MEANING OF LINEAR MEASURE. (2) FIND-LING THE APPROXIMATE PERIMETER OF CIRCLES. TRIANGLES, AND RECTANGLES, AND (3) USE OF THE MICROMETER FOR MEASURING LINEAR DISTANCES. ACCOMPANYING THELE BOOKLETS WILL BE A TEACHING STRATEGY BOOKLET WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

1529 ED 020 889

FOLEY, JACK L
VOLUME AND SURFACE AREA.
Pub Date—AUG67
Note—30P.

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Arithmetic, \*Elementary Mathematics, Extracurricular Activities, Geometry, \*Instructional Materials. Low Ability Students, \*Mathematics

Identifiers-Elementary Secondary Education Act

Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED FUPILS. A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (I) MEASURING VOLUMES OF RECTANGULAR SOLIDS, RIGHT RECTANGULAR PYRAMIDS, CYLINDERS, CONES AND SPHERES, AND (2) FINDING THE SURFACE AREA OF ELEMENTARY GEOMETRICAL CONFIGURATIONS, ACCOMPANYING THESE BOOKLETS WILL BE GEOMETRICAL CONFIGURATIONS, AC-COMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUG-GESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS. (RP)

# METRIC MEASUREMENT 1600 ED 183 406

Alderman, Harry And Others
Introduction to Metric Measurement. Topical
Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Cols Maintenatics, Denver. Colo

Spons Agency - National Science Foundation, Washington, D.C. Pub. Date - 74
Grail. NSF-GW-7720
Note - SSp., For related documents, see SE 030
304-322

304-322

Pub Type—Guides - Classroom Learner (051) - Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—\*Activities. Elementary School Mathematics, Elementary Secondary Education, "Learning Laboratories Mathematics Curniculum, Mathematics Instruction, "Measurement. "Metric System, "Secondary School Mathematics, Worksheets

The purpose of this module is to teach the house

The purpose of this module is to teach the basic metric measures of length, area, volume, capacity, d temperature, it introduces students to metric prefixes, abbreviations, and unit conversions with the system. Illustrative and optional material compares metric measures to our familiar American standard measures. The purposes are accomplished through the use of detailed explanations, experiments, charts, games, and manipulatives. After an introduction which points up the need for a uniform international measurement system, the student pro-ceeds through a series of experiments and worksheets. Most problems are related in some way to a physical model or actual measurement device. (Author MK)

ED 178 303 Metric Measurement: A Handbook for Elementary

Teachers and Administrators. Oklahoma State Dept. of Education, Oklahoma

Oklahoma State Dept. of Education, Oklahoma City.

Pub Date—77

Note—75p.

Pub Type— Guides - Classroom - Teache. (1952)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors—Change Strategies. Concept Formation. "Curriculum Guides, Elementary Secondary Education. Integrated Activities. Learning Activities, "Mathematics Curriculum, "Mathematics Education, "Mathematics Instruction, "Measurement. "Metric System, Resource Materials The nurboses of this metric handbook are: (11 to

The purposes of this metric handbook are: (1) to help teachers understand the general principles of measurement instruction; (2) to help teachers understand how children develop measuring concepts; (3) to provide information that will help teachers learn to use SI metrics; (4) to provide examples of learning experiences that teachers can use with learners; (5) to help teachers integrate metric instruction into the existing curriculum through an interdisciplinary approach so that it does not become an isolated topic; (6) to provide teachers: with information about sources of materials needed to supplement textbooks already in use, and (7) to provide administrators and teachers with suggested procedures for implementing metric instruction. Chapter topics include historical developments, using metric units, developing measurement concepts, measurement learning activities, and administrative implications and recommendations. (MP)

ED 173 169 Road Map Math (Metric Edition), Revised Edition.

Illinois State Office of Education, Springfield. Pub D = 76 Note - 57p

Available from Program Planning and Develop-ment, illinois Office of Education, 100 North First St., Springfield, Illinois 62777 (no price quoted)

quoted)
Pub Type— Guides - Classroom - Teacher (052)
EDRS Price MF01/PC03 Plus Postage.

Descriptors - Elementary Secondary Education.
\*Lar guage Arts, Learning Activities, \*Map Skills,
\*Mathematics Education, \*Mathematics Instruction, \*Measurem . \*Metric System, Student
Projects, Workslies.

This booklet designed for use with varying levels of remedial mati, eriatics students in grades 6-10, is intended to help the student become more comfortaining the metric system, reinforce the metric

and notions that are taught in other courses,

and aid in the development of basic mathematicus skills by having the student participate in measuring activities. The unit consists of two basic parts. (1 map skills exercises for individualized work, and (2) the trip-planning project, which provides an opportunity for the mathematics teacher and the language arts teacher to correlate one or more lessons. (MP)

ED 173 168 Handboon of Classroom and Workshop Metric Activity (ations.)

Illinois State Office of Education, Springfield Pub Date [75]

Pub Type— Chides - Classroom - Teacher (952)

EDRS Price - MF01, PC03 Plus Postage.

Descriptors: \*Curricu and Guides, Elementary Secondary Education | \*Learn-lease April 2007 | \*Learn-lease April 200 ing Activities, Nathematics Curriculum,
\* fathernatics (Jucation, \*Mathematics Instruction, \*Massurement \*Metric System, Worksheets, W. Ashops

The objective of this randbook are to assist K-8 classroom reachers in launching an activity oriented metric program that provides learning experiences in the measurement strands of linear, mass, and temperature, and to assist metric coordinators in planning metric awareness workshops is reachers, parents, and various community organizations. Detailed instructions are given for setting up a nietric activity station. The pages of the handbook are designed to be used as instructions at various metric activity stations. (MP)

ED 173 167

Color Merne.

Tice of Education, Springfield Illinois : 1.
Pub Date 75

Note -- 34p.

Available from-Program Planning and Development, Illinois Office of Education, 100 North First St., Springfield, Illinois 62777 (no price quoted) Pub Type-- Guides - Classroom - Learner (051)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Secondary Education,

\*Learning Activities, \*Mathematics Curriculum. \*Mathematics Education, \*Mathematics Instruc-tion, \*Measurement, \*Metric System, Worksheets

This booklet was designed to convey metric information in pictoral form. The use of pictures in the coloring book enables the more mature person to grasp the metric message instantly, whereas the younger person, while coloring the picture, will be exposed to the metric information long enough to make the proper associations. Sheets of the booklet are ready for duplication. Topics covered include temperature, length, volume, and weight. (MP)

1605 ED 173 166

About Using the Metric System.
Illinois State Office of Sucation, Springfield
Pub Date--78.

Note - 16p.; Not available in hard copy due to mar-

ginal legibility of original deliment
Pub Type-- Guides - General (050)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors-Computation, \*Educational Change, Elementary Secondary Education, \*Mathematics Curriculum, \*Mathematics Education, \*Mathematics Instruction, \*Measurement, \*Metric System, Resource Materials

This booklet contains a brief introduction to the use of the metric system. Topic-covered include (1) what is the metric system;  $(2)^{\frac{1}{2}} > to think met$ ric; (3) some advantages of the metric system; (4) basics of the metric system, (5) how to measure length, area, volume, mass and temperature the metric way; (6) some simple calculations using metric units; and (7) a metric system test. (MP)

Guidelines for Teaching Metric Concepts.

Wisconsin State Dept. of Public Instruction, Madi-SOR

Spons Agency-Office of Education (DHEW), Washington, D.C.

Pub Date--75

Note- 13p., Guide prepared through the Dissemination Project Pub Type - Guides - Classroom - Feacher (052) Guides - Non-Classroom (055)

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Concept Formation, Carries and Educational Change, Elementary Secondary Europe cation, \*Guidelines, \*Mathematics Educa

"Mathematics Instruction, "Measurement, "Met-ric System, "Objectives.

The primary purpose of these guidelines is to pro-side teachers and other decision makers with a sin-gested framework within which sound planning to metric education can be done. Statent behavioral objectives are listed by topic. Itach objective is coded to indicate grade level topic, and objective number. A chart is provided to show a kindergarten through eighth-grade perspective as for as morning objectives are concerned. Topos, to it with a chief length, area, capacity, solume, weight, temperature, density, force, velocity, and acceleration. (MP)

ED 171 557 1607 Elementary Mesric Curriculum - Project T.I.M.E. Timely Implementation of Metric Education's

Community School District 18, Broodyn, NY Spors Agency New York State Education Dept Albany Office of her demonstrated Warning-ton, D.C Pub Date 75

fon, D.C.
Pub Date 79.
Grant 42-C-77-13134 2-Dev
Note 125p. For related 9 cument, see 83 9/27
75b. Not available in Some upporter to marginal regibility of original locument.
Fub 7-pe Guides 9 Class Photo Receive (082)

EDRS Price - MF01 Plus Post no. PC Not Available from EDRS.

Die from EDRS.

Descriptors Activity Unity \*Fill of any Edition from \*Ejementary School Martin and Justin potential Matternes \*Mathematics Education \*Mathematics Materials Measuremy \*Materials Measuremy \*Materials Measuremy \*Materials Measuremy \*Materials Measuremy \*Materials \*Material stem. Teaching Guides. This is the second part of a two-part teacher's

manual for an ISS-basest clementary school course in the me me system. Behavioral objectives and stadent activities are included. Topics include (1) capacity, (2) calculation of volume and surface area of cylinders and cones. (3) mass, (4) temperature. and (5) metric conversions (BB)

1608 ED 171 556
Elementary Metric Curriculum - Project T.I.M.E. (Timely Implementation of Metric Education).

Community School District Us, Brookly J. N.Y. Spons Agency - New York State Education Dept., Albany , Office of Education (PHEW), Washing-ton, D.C. Pub Date - 79

Pub Date 19 Grant 42-C-77-13134-2-Des Note 173p, For related document, see SE 027 739, Not syallable in hard copy due to marginal

739, Not invaliable in hard copy due to marginal legibility of original document.
Pub Type — Guides - Classroom - Teacher (182).
EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.
Descriptors—Activity Units, \*Elementary Education, \*Elementary Nebool Mathematics, Instructional Materials, \*Mathematics Education, \*Mathematics Materials, Measurement, \*Metric System Teaching Guides. System, Teaching Guides

This is a teacher's manual for an ISS-based clementary school course in the metric system. Behavioral objectives and student activities are included The topics covered include. (1) linear measurement, (2) metric-decimal relationships, 3) metric conversions; (4) geometry, (5) scale drawings; and (6) capacity. This is the first of a two-part manual (BB)

1609 FD 171 553

Community School District 18, Brook on, N.Y. Spons Agency New York State Education Dept., Albany, Office of Education (DrHeV), Washington, D.C. Pub Date 79

Note 153p., Contains light and broken type Pub Type Guldes - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Activity Units, \*Instructional Materials, Junior High Schools, \*Mathematics Education, \*Mathematics Materials, Measurement, \*Metric System, Secondary Education, Secondary School Mathematics, Teaching Guides Presented are junior high school curriculum materials for teaching the metric system, included are behavioral objectives, pre- and post-tests, intro-

ductory and historical material, and units on linear measurement, geometry, weight, capacity, and tem-

perature. Each unit contains many student activities such as puzzies, fill in the blanks problems, and measurement of household objects. (BB)

ED 170 150 Teacher Resource Guide for Metric Education. Michigan State Dept of Education, Lansing.

Pub Date [78] Note -- 53p

Pub Type— Guides - Classroom - Teacher (052: EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Child Development, \*Concept Formation, Elementary Secondary Education, \*In-Struction. Instructional Materials. Learning Activities, "Mathematics Education, "Measure-ment, "Metric System, "Resource Materials

The intent of this document is to provide inswers to questions related to teaching the metric system. Topigs covered include: (1) A Model for Develop-Topigs covered include: (1) A Model for Developing Understanding and Skills in Measurement. (2) Metric Measurement Units; (3) SI Do's and Don'ts; (4) Examples of Everyday Uses of SI Measures; (5) ChNd Development and Learning to Measure; (6) Choosing instructional Muterial and Equipment; (7) A Minimal List of Metric Equipment and Materials; (8) A Desirable List of Metric Equipment and Materials You Can Make; (10) Activities and Games. (11) A Brief History of Metric Measurement and Legislation; (12) A Guide for Writing Learning Sequences in Measurement; and (13) Activities to Involve the Community, (MP tivities to Involve the Community. (MP

Huber, Roland B.

ED 167 361

Hi Metric Fans! We're, the Metric Mice. Elementary Metric Project Awareness Booklet. Pub Date-78

Note-22p.; Contains occasional light type Pub Type- Reports - Descriptive (141) - Guides

- Classroom - Teacher (052)
EDRS Price - MF01/PC01 Plus Postage.
Descriptors—Curriculum, Elementary Education,
Elementary School Mathematics, \*Instruction,
Instructional Materials, \*Measurement, \*Metric System, Program Descriptions, Validated Programs, Worksheets

Identifiers-\*Elementary Metric Project, National

Diffusion Network Programs

An overview and samples of some of the materials

contained in the Elementary Metric Project's curriculum for grades 1-6 are presented. Information is given concerning the adoption of the program. The sample activity sheets deal with linear measurement, mass, volume, and temperature. (MP)

1612 ED 164 257 A Guide to Tearking the Metric System, 1977

Pennsylvania State Dept. of Education, Harrisburg, Bureau of Curriculum Services.

Pub Date -77 Note-31p. For related document, see FD 102

Note--31P: For related document, see ED 102 020: Contains occasional light and broken type Pub T. pe-- Gui-25 - General (050)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors—Behavioral Objectives, Curriculum, Elementary Secondary Education, \*Instruction, Learning Activities, \*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides Teaching Methods Guides, Teaching Methods

Three bulletins are contained in this packet d signed to help leachers introduce the metric system Built is one contains objectives and related teaching suggestions for the following topics: length, area, volume, mass, and temperature. Bulletin two contains a fact sheet and rules for symbols and notation. Bullitin three contains classroom activities. (MP)

ED 160 390 Metrics. The Measure of Your Future: Metrics in the K-8 Curriculum - A Multidisciplinary Guide to Transition.

North Carolina State Dept. of Public Instruction,

North Carolina State Dept. of Public Instruction, Raleigh. Div. of Development., Winston-Salem City Schools, N.C.

Spons Agency—Pureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date—Mar. 76

Grant—ESEA-43-74-259

Note—197p.: For related documents, see SE 024-900-907; Not available in hard copy due to marginal legibility of original document.

Available from Instructional Materials Development Center, 2720 South Main Street, Winston-Salem, North Carolina 27107 (\$4.00) Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - \*Behavioral Objectives, \*Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, \*Instructional Materials, Instructional Programs, Measurement. \*Metric System, Secondary School Mathematics. \*Teaching Guides, \*Tests

This teacher's guide contains a complete list of goals, behavioral objectives, activities, materials and equipment, and tests needed for implementing a metric education program in grades K-8. Ten broad goals are listed and each behavioral objective is referenced to one of these. The behavioral objectives are also referenced to grade levels and to the activities list. The activities are referenced to grade levels, to the materials list and to the goals. The materials and equipment are referenced to a list of publishers, producers and suppliers along with the costs and dates of publication. The materials and equipment list is coded for leacher reaction, the code being from 1 through 5 for each of the following levels: primary intermediate, junior high, adult education, senior high, and teachers. The criterion-referenced test items are referenced to goals, grade levels and behavioral objectives. The tests are multiple choice but are designed for interview testing at the lower levels. The number of choices range from two at the lower levels to four at the upper levels. (MP)

ED 160 389 Metrics, The Measure of Your Future: All Together Now - Teach Metrics.

North Carolina State Dept. of Public Instruction. Raleigh, Div. of Development; Winston-Salem City Schools, N.C.

Spons Agency—Bureau of Elementary and Second ary Education (DHEW OE), Washington, D.C. Pub Date-Dec 76

Grant--ESEA-69-77-028

Note—60p., For related documents, see SE 024 900-907; Contains occasional light and broken type

type
Available from—Instructional Materials Development Center, 2720 South Main Street. Winston-Salem. North Carolina 27107 (\$2.00)
Pub Type—Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—"Elementary School Mathematics,
Elementary School Teachers, Elementary Secondary Education. "Guides, "Inservice Education. Measurement, "Metric System. Secondary
School Mathematics, Tucking Guides School Metheniatics, Teaching Guides

These materials were developed for in-service workshops for K-8 teachers as part of the Winston-Salem/Forsyth County Metric Education Project. A teacher (or learn of two) from each school was trained in a series of six 3-hour sessions using hands-on measurement activities. Teachers in turn were responsible for conducting 10 1-hour in-service sessions in their own schools. The materials are written for the leaders of the school phase of the inservice eduration project. Each of the 10 chapters contains specific instructions on how to conduct the session. These instructions are divided into the following categories: (1) In Advance; (2) You Need; (3) Suggested Activities; (4) Assignment; and (5) Notes, Following each instruction sheet, the details of the lesson plan are given including background materials for the sessions, written mat mals needed, transparency suggestions etc. The chapters are: (1) Background and Status; (2) Temperature. Time and Background and Status; (2) Temperature, Time and Money; (3) Non-Standard and Arbitrary Units; (4) Linear-Centimeter; (5) Linear-Meter, Etc.; (6) Area-Squares; (7) Volume-Cubes; (8) Capacity-Liquids; (7) Man-Weight-Force; and (10) Vocabulary-Rem Schule, (8) Form Symbols. (MP)

615 ED 160 387 Metrics. The Measure of Your Future: Criteric Referenced Metrics Tests, Levels K-8, Form A. North Carolina State Dept. of Public Instruction.

Raleigh, Div. of Development, Winston-Salem City Schools, N.C.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington D.C. Pub Date-May 77

Grant -ESEA-69-77-028

Note-33p.: For related documents, see SE 024 900-907. Not available in hard copy due to marginal legibility of original document

Available from--Instructional Materials Development Center, 2720 South Main St., Winston-Salem, North Carolina 27107 (\$1.00) Pub Type -- Tests/Questionnaires (160)

ن ن

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Criterion Referenced Tests, \*Elementary School Mathematics, Elementary Secondary Education, "hvaluation, "interviews, Measurement, \*Merric System, Secondary School Mathematics, \*Tests

An extensive list of criterion-referenced metric test items are published in this booklet for use by educators in levels K-8. Multiple-choice tests are referenced to the goals and behavioral objectives published in "Metrics in the K-8 Curriculum" Each test item is labeled according to grade level, broad goal, and behavioral objective. Questions for the kindergarten level are designed for a one-ti-one setling. There are two choices for each item. At levels I and a, the teacher reads each item aloue, the students mark their own papers. Again there are two choices. For children who can rest with average skill in levels 3 to 8, a written test is given with three choices at levels 3-4, and four at levels 5-8. If reading level warrants, the teacher may read a oad andor use transparencies. (MP)

ED 160 384 ...etrics, The Measure of Your Future: The Meter was Never Like This and MetricMisQuotes.

North Carolina State Dept. of Public Inscruction, Raleigh, Div. of Development.

Spons Agency Bureau of Elementary and Seconds ary Education (DHEW OE), Washington, D.C. Pub Date - Dec 7

Note - 10p.: For related documents, see SE 024 901-907; Contains light and broken type

Available from Instructional Materials Development Center, 2720 South Main St. Winston-Salem, NC 27107 (No price quoted)

Pub Type | Journal Articles (080)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors--Bulletins, \*Elementary School Mathematics, Elementary Secondary Education, Humor. \*Instructional Materials Measurement, \*Metric System, \*Parody, \*P-.. \*Resource Materials, Secondary School Mathematics

Humorous imitations of famous poems and quotations, altered with metric language, are presented in this document published by the Winston-Salam -Forsyth County Schools Metric Education Project. In addition, a section entitled "A Metrikey" relates metric units to familiar nems such as width of doorknobs, areas of typewriter keys, etc. (MP)

ED 156 453

Johnson, Willis N. And Others

Measurement Module: The International (SI) Metric System.

Spons Agency--Murray State Univ., Ky.: Office of Education (DHEW), Washington, D.C.

Pub Date---78

Contract -- 561-AH-70073

Note--59p.; Not available in hard copy due to marginal legibility of original document

Pub Type--- Guides - General (050)

## EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—\*Activity Units, Bibliographies, \*Guidelines, History, \*Instruction, Interdisciplinary Approach, Mathematics Education, Measurement, \*Metric System, \*Teacher Education Teaching Methods

This module was prepared to "metricate" approximately 3800 teachers in Western Kentucky. A brief history of measurement systems is followed by sections concerning length, mass (weight), temperature, and area and volume measurement. Each section contains a list of the common metric units used and their relationship as well as activities for learning to think with metric measures. A pietest and posttest are included. The appendices contain treatments of the metric system rules and units, metric units for everyday use; recommendations, ideas, and teaching suggestions for developing mettic programs and introducing the metric system; and a bibliography of metric publications along with list of metric materials available at no cost to teachers as well as available inexpensive metric publications. (MN)



ED 148 574

1618 Otto. Karen And Others

Primary Metrics.

Wisconsin Univ., Eau Claire.

Pub Date-76

Note—63p.: For related documents, see SE 023 286-291; Not available in hard copy due to copyright restrictions; Contains colored pages throughout entire document

Available from—Dr. Juanita Sorenson, University of Wisconsin-Eau Claire, Library 1109, Eau Claire, Wisconsin 54701 (\$3.50)
Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

ble from EDRS.

Descriptors—Elementary Education, \*Elementary School Mathematics, \*Experiential Learning, Instruction, \*Instructional Materials, \*Measurement, \*Metric System, Resource Materials Identifiers—\*Wisconsin These 55 activity cards were created to help tackers in the property of the control of the property of the property

teachers implement a unit on metric measurement They were designed for students aged 5 to 10, but could be used with older students. Cards are confcoded in terms of activities on basic metric terms. prefixes, length, and other measures. Both individual and small-group games and ideas are included (MS)

1619 ED 146 058

Sledge, Lydia Weils Thompson, Charles S. The Common Sense Metric Manual.

Kentucky State Dept. of Education, Frankfort. Pub Date-77

Note-33p.; Some parts may be marginally legible due to small type Pub Type— Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Secondary Education.

\*Instruction, Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Measurement, "Metric System, Objectives, "Resource Materials, "Teaching Guides Identifiers—"Kentucky

This manual was written to provide basic information he metric system for Kentucky teachers. Ty we are going metric is briefly discussed, fol- 2 by a concise presentation of metric measures. What children should learn is specified in terms of componencies for grades 3, 6, and 9. Teaching tips inted, with activities for use with children. inferences for five other curricular areas are noted. A list of 19 useful materials is also included. (MS)

ED 146 010

Metric Education Plan for Virginia.

Virginia State Dept. of Education, Richmond. Div. of Secondary Education of Education (DHEW), Washington, D.C.
Pub Date—Fun 77

Pub Date—Jun 77
Note—62p.
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum, Educational Planning,
Elemen inv Secondary Educational "Guidelines,
Instruction," "interdisciplinary Approach, "Mathematics Education, Measurement, "Metric System, "State Curriculum Guides, State
Departments of Education
Identifiers—"Virginia
This comprehensive document is the result of

statewide planning for the implementation of metric education in Virginia schools. An introduction discusses the rationale, needs, and continuing objectives for metric education. An organizational structure for metric education in Virginia is outlined. Guidelines for administrative plaining are presented in terms of organizing local metric programs, community awareness programs, educa-tional media, inservice programs, school lunch program, telecommunications, teacher certification, and the state testing program Instructional programs are outlined in some detail for: elementary, adult, agricultral, arr, bisiness, distributive, driver, English, foreign language, health and physical, home economics, industrial arts, mathematics, music, science, social studies, special trade and industrial, and vocational education. Curriculum applications, teacher education, and activities for students are presented for each subject matter field. An annotated bibliography, sources of free materials, metric measurement activities and games, guidelines for evaluation, a teacher's self-inventory, an attitude scale, criteria for selecting materials, and sample test items are also included. (MS)

1621 ED 141 108 The 4M company: Make Mine Metric Mission! Sixth Grade Teacher's Cuide.

Hawaii State Dept of Education, Honolulu Hawaii Univ., Honolulu, Coll. of Education

Note-81p., For related documents, see SE 022 570-582

Available from -- Metric Project, University of Ha-waii, 1776 University Ave., Henolulu, Hawaii 96822 (\$3,00)

Pub Type— Guides eral (050)

EDRS Price - MF01 34 Plus Postage.

Descriptors—Elementary Education, \*Elementary School Mathematics. \*Instructional Materials. \*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides

This is one of several teacher's gantes for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in the guide are sections on needed materials, metric symbols, length, perimeter, area, volume capacity, mass (weight), decimals, conversion between metric units, temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included

1622 ED 14, 107 The 4M companY: Make Mine Metric Mission! Sixth Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu., Hawaii Univ., Honolulu. Coll. of Education. Pub Date-76

Note-74p.; For related documents, see SE 022 570-583

Available from-Metric Project, University of Ha-waii, 1776 University Ave., Honolul : Hawaii 96822 (\$1.00)

90822 (\$1.00)
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Elementary Education. \*Elementary School Mathematics, \*Instructional Materials.
\*Mathematics Education. \*Metric System, Workbooks

This student activity manual for elementary students is designed to teach several metric units. Included are activities related to length, area, volume, mass, and temperature. This manual emphasizes units, measuring, and computation skills. Computation skills stressed include addition, subtraction, and multiplication. Problems include whole numbers and decimals. Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

ED 141 106 The 4M compaNy: Make Mine Metric Mystery. Fifth Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date—7e Note—72p.; For related documents, see SE 022 570-583; Not available in hard copy due to mer-

ginal legibility of original document Available from—Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 (\$3.00)

Pub Type— Guides · General (050) EDRS Price · MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education. \*Elementary School Mathematics, \*Instructional Materials, \*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides

This is one of several teacher's guides for the 4M. Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, metric prefixes and symbols, length, decimals, perimeter, area, volume, mass, temperature, and a minicourse on metrics. Answers to the activities in the related student activity manual are included. (FH)

1624 ED 141 105 The 4M compaNy: Make Mine Metric Mystery. Fifth Grade Student Booklet.

Hawait State Dept. of Education, Hone du Hawaii Univ. Honolulu. Coll of Education Pub 5-1c-76

No.e 63p.: For related documents, see SE 022 570-583

Available from - Metric Project, University of Ha-waii, 1776 University Ave. Honoluiu, Hawaii 96822 (\$1.00)

Pub Type Guides - General (356)

EDRS Price - ME31 PC03 Plus Postage.

Descriptors Elementary Education, Elementary School Mathematics, Instructional Materials, "Mathematics Education, "Metric System, Workship of the Control of

This student activity manual for elementary students is designed to teach several concepts related to the metric system and measurement, Included are activities related to length, area, volume, conversion of metric units, and Computation skills with decimals (addition, subtraction, and division). Cartoons are used extensively to appeal to student in-

ED 141 104 The 4M compAny Make Mine Metric Mob. Fourth Grade Teacher's Guide.

Hawan State Dept of Education, Honolulu , Hawan Univ., Honolulu, Coll. of Education Pub Date 76

Note 87p; For related documents, see 8E 022 570-583; Not available in hard copy due to marginal legibility of original document. Available from Metric Project, University of Hawaii, 1776 001, very Ave. Honolulu, Hawaii 0322-052-053. 96822 (\$3.00) Pub Type - Guides - General (050)

EDFS Price - MF01 Plus Postage, PC Not Availab! from EDRS.

Descriptors- Elementary Education, \*Elementary School Mathematics, \*Instructional Materials, \*Mathematics Education, \*Measurement, \*Metric System, \*Te-ching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, temperature, length, metric prefixes, decimals, mass, area, perimeter, and a mini-course on metrics. At swers to the activities in the related student activity manual are included. (RH)

ED 141 103 The 4M compAny: Make Mine Metric Mob. Fourth Grade Student Booklet.

Hawaii State Dept. of Education. Honolulu ; Hawaii Univ., Honolulu, Coll. of Education. Pub Date-- 76

Note 84p.: For related documents, see SE 022 570-583

Available from - Metric Project. University of Hawaii, 1776 University Ave., monolulu, Hawaii 96822 (\$1.00)

Pub Type Guides - General (050)

Descriptors - Elementary Education, \*Elementary School Mathematics, \*Instructional Materials, \*Mathematics Education, \*Metric System, Work-

This student activity manual for elementary students is designed to leach several metric units. Included are activities related to temperature, length, volume, and mass. In this manual, reading, adding, and subtracting decimals is stressed. Activities include a variety of drill sheets. Cartoons are used extensively to appeal to student interests. (RH)

1627 ED 141 102 The 4M comPany: Make Mine Metric Marvels. Third Grade Teacher's Guide.

Hawaii State Dept of Education, Honoiulu.; Hawaii Univ., Honolulu. Coll. of Education

Pub Date: 76 Note: 102p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from: Metric Project, University of Ha-waii, 1776 University Ave., Honolulu, Hawaii 96822 (\$3,00)

Pub Type Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - Elementary Education, \*Elementary School Math matics, \*Instructional Materials. \*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, length (uncient Hawaiian units, meter decimeter, centimeter, addition, subtraction), decimals related to meters (measurement, addition. subtraction), capacity (liter, deciliter) decimals related to liters (addition, subtraction), mass (gram, kilogram, addition, subtraction), perimeter, temper-



ature, and a minicourse on metricis. Answers to the activities in the related student activity manual are included (RH)

ED 141 101 The 4M comPany: Make Mine Metric Marvels.

Third Grade Student Booklet. Hawaii State Dept. of Education, Honolulu., Hawaii

Univ., Honolulu. Coll. of Education Pub Date - 76

Note-62p.; For related documents, see SE 022 570-583

Available from-Metric Project, University of Hawaii. 1776 University Ave., Honolulu, Hawaii 96822 (\$1.00)

Pub Type- Guides - General (050)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors—Elementary Education, \*Elementary School Mathematics, \*Instructional Materials. \*Mathematics Education, \*Metric System, Workbooks

This student activity manual for elementary stedents is designed to teach several metric units. Included are activities related to length (meter). volume (liter), mass (grams), and temperature (celsius). Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

ED 141 100

The 4M coMpany: Make Mine Metric Monsters. Second Grade Teacher's Guide.

Hawaii State Dept. of Education, Honolulu,; Hawaii Univ., Honolulu, Coll. of Education.

Pub Date-76

Note-77p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from-Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 (\$3.00)

Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors-Elementary Education. \*Elementary School Mathematics, \*Instructional Materials. \*Mathematics Education. \*Measurement. \*Metric System. \*Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation skills to elementary school students. Included in this guide are sections on needed materials, length (comparison, arbitrary units, meter, decimeter, centimeter, addition, subtraction), capacity (comparison, arbitrary units, liter, deciliter, addition, subtraction), mass (comparison, arbitrary units, gram, kilogeness and scrature, and a minicourse on metrics. At the conactivities in the related student activiuas arc included. (RH)

1630 ED 141 099 The 4M coMpany: Make Mine Metric Monsters. Second Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll. of Education.

Pub Date---76

Note-57p.: For related documents, see SE 022 570-583

Available from-Metric Project, University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 (\$1.00)

Pub Type- Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors-Elementary Education. \*Elementary School Mathematics. \*Instructional Materials. \*Mathematics Education, \*Metric System, \*Primary Education, Workbooks

This student activity manual for primary students is designed to teach several metric units. Included are activities related to length, volume, mass, and temperature. This manual emphasizes learning to measure, reading instruments, spelling terms, and making comparisons. Activities include a variety of drill sheets interspersed with other activities. Cartoons are used extensively to appeal to student interests. (RH)

ED 141 098

The 4M cOmpany: Make Mine Metric Mice. First Grade Teacher's Guide.

Hawaii State Dept. of Education, Henofulo., riawaii Univ., Honolulu. Coll. of Education

Pub Date 10

Note-65p., For related documents, see SF 922 570-583. Not available in hard copy due to marginal legibility of original document

Available from "Metric Project, University of Hawaii. 1776 University Ave., Honolulu, Hawaii 96822 (\$3.00)

Pub Type - Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Elementary Education, \*Elementary School Mathematics, \*Instructional Materials, \*Mathematics Education, \*Measurement, \*Me.ric System, \*Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation. This level of the program extends comparisons from two objects to comparisons involving three or more objects. Vocabulary includes superlatives (longest) as well as comparatives (longer). Students are introduced to six metric units: meter, decimeter, liter, deciliter, gram, and kilogram. They compare these units to properties of common objects and learn to measure with several tools. Conservation of length, liquid, and mass are also included. (Author/RH)

1632 ED 141 097

The 4M cOmpany: Make Mine Metric Mice. First Grade Student Booklet.

Hawaii State Dept. of Education, Honolulu., Hawaii Univ., Honolulu, Coli, of Education, Pub Date-76

Note-55p.; For related documents, see SE 022 570-583

Available from-Metric Project. University of Hawaii, 1776 University Ave. Honolulu, Hawan 96822 (\$1.00)

Pub Type- Guides - General (00%)

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—Elementary Education. \*Elementary School Mathematics. \*Instructional Materials. \*Mathematics Education. \*Metric System, \*Primary Education, Workbooks

This student activity inanual for primary students is designed to teach several metric units. Included are activities related to length, volume, mass, and temperature. This manual emphasizes making comparisons between objects - big, small, long, short. heavy, light, most, least, hotter and colder. Measuring skills are also stressed. Cartoons are used extensively to appeal to student interests. (RH)

1633 ED 141 096 The 4M Company: Make Mine Metric Monkeys. Kindergarten Teacher's Guide.

Hawaii State Dept. of Education, Honolulu.; Hawaii Univ., Honolulu. Coll of Education.

Note-46p.; For related documents, see SE 022 570-583; Not available in hard copy due to marginal legibility of original document

Available from-Metric Project. University of Hawaii, 1776 University Ave., Honolulu, Hawaii 96822 (\$3.00)

Pub Type- Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Elementary Education. \*Elementary School Mathematics, \*Instructional Materials. \*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides

This is one of several teacher's guides for the 4M Company, a set of materials for teaching metric concepts and computation. This level of the program deals with premeasurement concepts and vocabulary and introduces the basic metric units. Students compare properties of common objects directly Students are introduced to four metric units: meter. liter, gram, and kilogram. Piagetian conservation tasks dealing with length, liquid, and mass are part of the program at this level. Included in the publication are needed materials, discussion of the activities, examples of responses for related student activities, and a minicourse on metric concepts

ED 1- 095 The 4M Company: Make Mine Metric Monkeys.

Kindergarten Student Booklet. Hawaii State Dept. of Education, Honolulus Hawaii

Unit . Honolule Coll of Education Pub Date +76

Note: 30p., For reinted documents, see St. 022 571-583

Available train. Metric Project, University of Hawan 1776 University Ave. Honolass Hawar 46822 (\$1.00)

Pub Type Guides - General (65) ;

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Elementary Education, \*Elementary School Mathematics, \*Instructional Materials \*Mathematics Education, \*Metric Nystein, \*Primary Education, Workbooks

This student activity manual for primary students is pesigned to teach several concepts related to measurement. Included are activities related to length, volume, and mass. The manual on phasizes comparisons between objects - Sig. smill, Hug. short, heavy, light most, and least Cartoons are used extensively to appeal to student interests (RH).

1635 ED 14: 673

Gourles, Frank a Jr.

Metrics Course Outline and Resources.

North Carolina State Dept. of Community Colorges Raleigh

Pub Date: S.p.76

Note: 34pi; Contains occasional light type

Pub Type - Guides - General (650)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors -- Adult Education, \*Community Colleges, \*Course Descriptions, Cornectium, Higher Education, "Mathematics Education, Measure-ment, "Metric System, "Risource Materia's, Technical Education

This booklet is intended as one resource to be used in teaching the metric system in community colleges and technical inscitutes or in other types of adult education programs. Beginning with a list of seven objectives, the guide provides a detailed outline for a course organized around these objective The seven sections of the course are filled Orientation to the Merric System, (2) The Mer System; (3) Estimating Metric Quantities (len) and mass); (4) Derived Units of Length and Mar-(5) Additional Metric Quantities and conts, in Conversion Factors; and (7) Metric Measurements and Metric Equipment, A small amount of instructional material related to each section to provided A list of suggested resources, organized by topic, completes the booklet. (SD)

1636 ED 127 125

How to Teach Metric Now. Worcester Public Schools, Mass.

Prb Date - [73]

Note---85p.; Page 25 containing a copyrighted artiele from the magazine "Grade Teacher" was removed. It is not included in the pagination.

Pub Type— Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptors - \*Curriculum Guider. \*Elementary Education. \*Learning Activities. \*Memematics. Education, \*Measurement, \*Metric System, Resource Materials, Secondary Education

This curriculum guide for grades K-6 was prepared to assist teachers and students in learning about the metric system. An introductory section presents a brief history of the metric system and the rationale for introducing it into the schools. Instructional objectives and suggested learning activities are presented for rach grade level. The activities vary in format, and sometimes include objectives and followup as well as materials required and procedures. Sample activities include using measuring wheels, weighing snow; using scales, bar graphs, and the Ceisius thermometer; and constructing a quadrate out of doors. A short section illustrates how the metric system can be taught at the junior and senior high levels. Background and reference materials for the teacher in the intermediate grades are provided and include tables, charts, and conversion data. A list of references used in preparing the guide is appended. (RG)



1637 - ED 137 124

Metric. Career Education Program. Salem City Schools, N.J.

Pub Date -- [73]

Note == 58p.; Pages 12, 13 and 58 were removed due to copyright restrictions; Not available in hard copy due to marginal legibility of original document

Available from ... The Career Education Project. Salem High School, Salem, New Jersey 08079

Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—\*Elementary Secondary Education,
\*Instructional Materials, \*Learning Activities, \*Mathematics Education, \*Measurement, \*Metric System, Resource Materials

This is a compilation of instructional materials to assist teachers and students in learning about the metric system. Contents are organized into four color-coded sections containing the following: (1) background and reference materials for the teacher. including a list of available media and a conversion chart; (2) metric activities for primary grades; (3) metric activities for the middle school; and (4) metric activities for 1 gh schools. Over 12 ac ivides are included in each of the sections and can be adapted for other instructional levels. Sample activities are making a liter container, treasure hunts, map skills, shopping, and baking. The activities vary in format but generally include a list of materials and procedures. (RG)

ED 134 437

Deane, H. Panetta P.

Metric Activities for Elementary Grades. York Borough Board of Education, Toronto (On-

tario).

Pub Date - Sep 76

Note -58p.; Not available in hard copy due to marginal legibility of original document

Available from—Professional Library, Education Administration Centre, 2 Trethewey Drive, Toronto, Ontario, Canada M6M 4A8 (limited number of single copies available free)

Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Curriculum, \*Elementary School Mathematics, Elementar Secondary Education. \*Instruction, Instruction 1 Materials, Laboratory Procedures, Learning Activities, Mathematics Education. \*Measurement, \*Metric System, \*Worksheets

This booklet contains a series of worksheets on the metric system to be used with stillents at the elementary school level. Twenty of the worksheets are concerned with linear measurement, four with area, ten with mass, and four with capacity. (DT)

ED 133 168

Callahan, Dorothec T.

An Effort to Implement and Reinforce the Teaching of Metrication Through the Development of Innovative Games.

Pub Date-76

Note -- 105p.

Pub Type— Guides - General (159)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors - Curriculum, \*Educational Games. \*Elementary School Mathematics, Elementary Secondary Education. Games. \*Instruction. Instructional Marerials, Learning Activitie. Mathematics Education, \*Measurement, \* Tetric Nystem, Program Descriptions, Teacher Developed Materials

This document reports on the development of a group of new games for teaching the metric system he elementary school. The preliminary steps in getting teachers involved in the project are discussed, and details are given concerning the procedures for developing and evaluating the games. An inventory of 12 games is presented; for each game the materials needed, the number of players, age of players, and rules of the game are specified. A brief evaluation of the project is included. (DT)

1640

ED 131 225

Edgecomb. Philip 1. Shaprov. Marion Introduction to Metrics.

Rutgers, The State Lines, New Brunswick, NJ Curriculum Lab.

Spons Agency—New Jersey State Dept. of Education, Trenton, Div. of Vocational Education Pub Date -- Jun 76

Note--- 122p.

Available from - New Jersey Vocational-Technical Curriculum Laboratory, Bldg 4103, Kilmer Campus, Rutgers University, New Brunswick, N. J. 08903 (\$1.50 plus postage)

Pub Type-- Guides - General (050)

EDRS Price - MF01/PC05 Plus Postage.

Descriptors--Curriculum, Instructional Materials. \*Learning Activities \*Mathematics Curriculum, Mathematics Materials, "Measurement, "Metric System, Secondary Education, Teaching Guides. Voczwonal Education, Workbooks

Addressed to vocational, or academic middle or high school students, this book reviews mathematics fundamentals using metric units of measurement. It utilizes a common-sense approach to the degree of accuracy needed in solving actual trade and every-day problems. Stress is placed on reading off metric measurements from a ruler or tape, and on changing units by moving the decimal point. It is designed to reinforce the student's ability to solve problems and includes eight units: Introduction to Metrics, Working with Metric Math, Linear Measurement, Area Measurement, Volume Measurement. Mass or Weight, Temperature Measurement. and Metric Threads. Each unit contains from one to six lessons with each lesson including objectives, text material, and learning activities (discussion questions or written exercises). The seven appendixes include numerous conversion charts as well as charts of screw-thread sires. (HD)

ED 127 144

Draper. Bob. Comp. Metric Activities, Grades K-6. San Diego City Schools, Calif. Pub Date-75

Note-43p.

Pub Type- Guides - General (050)

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—Elementary Education. \*Elementary School Mathematics, Instruction. \*Instructional Materials, \*Learning Activities, Markematics Education, \*Measurement, \*Metric System. Worksheets

This pamphlet presents worksheets for use in fifteen activities or groups of activities designeteaching the metric system to children in grades a through 6. The approach taken in several of the activities is one of conversion between metric and English units. The majority of the activities concernlength, area, volume, and capacity. A bulletin board idea for introducing the Celsius scale is included. In addition to the worksheets, the pamphict includes a brief history of the metric system and rationale for the United States' adoption of it, and a list of materials and audio-visual aids available to teachers in the San Diego City Schools. (SD)

1642

EC 125 914

Cooley. Debra L. Try It You'll like It: Let's Go Metric. Pub Date-76

Note-48p.: Not available in hard copy due to marginal legibility of original document

Pub Type- Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors-Benavioral Objectives. Elementary Education. \*Elementary School Mathematics, Evaluation, instruction. \*Instructional Material\*. \*Learning Activities, \*Measurement. \*Metric System, Worksheets

This document provides a series of worksheets for use in elementary school instruction concerning the metric system. The broad objective of the instruction is that the student be "comfortable and accurate in using metric measures in daily life." Specific objectives are identified in six categories: (1) think metric. (2) linear measures. (3) temperature. (4) metric in the kitchen and m. rket. (5) let's educate the public, and (6) careers in metric. For each objective, instructional activities and suggestions for criterion referenced evaluation are discussed. (SD)

ED 124 425 Metrics in the K-8 Curriculum: A Multidiscipli-

nary Guide to Transition. North Caroline State Dept of Public Instruction,

Raleigh, Dix of Development Spons Agency - Bureau of Flementary and Secondary Education (DHEW OE), Washington, D.C.

Pub Date - Mar 76 Grant - NC-43-74-259 Note - 127p; Not available in hard copy due colight and broken type throughout

Available from Instructional Materials Develop-ment Center, 2720 South Main Street, Winston-Salem, North Carolina 27107 (\$4.00) Pub Type — Guides - General (050)

EDRS Price · MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Behavioral Objectives, Curriculum, Elementary School Mathematics, Elementary Secondary Education, Guidelines, Instruction, \*tastructional Materials, Interdisciplinary Approach, Mathematics Education, Measurement, \*Metric System, Secondary School Mathematics Identifiers - Elementary Secondary Education Act Title III

These guidelines for the implementation of instruction in the metric system in grades K-8 were developed under the philosophy that students should develop the ability to use the metric system in all aspects of their lives. Therefore the approach outlined is an interdisciplinary one with minimal attention to conversion from the English to the metric system. Ten broad goals are stated, and behavioral objectives related to each goal are defined for

each of the nine grade levels. Suggestions for ties are provided for each behavioral object list of materials which can be purchased for use in each of these activities is accompanied by a list of addresses of suppliers. Criterion-referenced tests for

each grade level are included. (SD)

ED 123 077 1644 Coster, Norma, Ed.

Individualized Math Problems in Metrics. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon State Dept. of Education, Salem, Career and Vocational Education Section.

Note-8p.; For related documents, see SE 020 628 648

Available from- Continuing Education Publications, P.O. Box 1491, Portland, Oregon 972)7

Type— Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors-Individualized Instruction, \*Instructional Materials, Mathematical Applications, Mathematics Education, Measurement, \*Metric System, \*Problem Sets, Secondary Education, \*Secondary School Mathematics, \*Vocational Education Identifiers \*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems de cloped by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. So-lutions are provided for all problems. This bookies contains a problem on metric measurement in the area of auto mechanics, tables for estimati . proetric measures of apothecarriquantities, and a list of commonly used abbreviations. (SD)

ED 119 995

Gepport, William J. And Oth re

Introduction to Metric Aeasurement, A Guide for Instruction of Measurement Techniques in the International Metric System of Measurement. Reprint

Delaware State Dept of Public Instruction, Doverage Del Mod System, Dover, Del.

Spons Agency - Bur, au of Elementary and Secondary Education (DHEW OE), Washir con, D.C.
Div. of State Agency Coopera National
Science Foundation, Wishington, D.C.
Report No. - NSF-GV 103
Pub Date Oct 74
Note: 4781 Operations

Note 47p.; Occasiona. rinal legibility due to colors used

Available from Mr. John F. Reiher, State Supervisor of Science and Environmental Education, Dept. of Public Instruction, John G. Townsend Building, Dover, Delaware 1990! (Free white supply lasts)

Guides - General (050) Pub Type



EDRS Price - MF01/PC02 Plus Postage.

Descriptors - Curriculum. \*Curriculum. Guides.

Elementary Secondary Education, Instruction,

\*Learning Activities, \*Mathematics Education. \*Measurement, \*Metric System, State Departments of Education, Tests, Worksheets, Work-

Identifiers - Delaware, \*Del Mod System, National Science Foundail ...

This booklet provides the teacher with an overview of the development and use of the metric system, a set of rules and definitions of metric terms. a series of suggested activities related to the metric system, guidelines for conducting metro workshops, and a list of potential sources of resource materials. Measurement pre- and posttests are also included. Many of the activities described are appropriate for students at all grade levels. The tests are designed for secondary students. (SD)

#### 1646 ED 116 925 Metrics in Education - Resource Materials.

New York State Education Dept., Albany, Dr. of Curriculum Development.; W stern Mr., gan Umr., Kalamazoo, Center for Metric Education. Sins Agency - Bureau - Adult, Vocational, and Technical Education (DHEW OE), Washington, Shins Agency - Bureau : DC.

Bureau No - N'257006 Pub Date [75] Grant OEG-0-72-1868

Note 59p. Pub Type Guides - General (050)

EDRS Price - MF01/PC03 Plus Postage.
Descriptors—\*Charts, Instructional Materials,

Mathematics Materials, Measurement, \*Metric System, \*Postsecondary Education, \*Resource Materials, Secondary Education, \*Secondary School Mathematics, Technical Mathematics

This publication contains materials suitable for reproduction as transparencies or as classroom handcuts. These metric materials may be used in a variety of occupational and practical arts courses. The format of the materials is in large print, some with humorous drawing; details of drawings and charts are easy to read. Introductory pages deal with all units of metric measures but the primary eniphasis is upon linear uses of metric measures. Specific topics include: reading a metric micrometer and a vernier caliper, tables of metric hardware sizes, diagrams of metric hardware (nuts, boits, screws, wrenches, etc.), master dimensioning, dual dimensioning, conversion tables, metric sizes of softwood, orthographic projection comparisons (first and third angle), paper sizes and weights, and printer's units. (JBW)

1647 E 15 494

Leffin, Walter W

Going Metric: Guidelines for the Math latics Teacher, Grades K-8.

National Council of Teachers of Mathem, ties, Inc., Reston, Va.

Pub Date-75 Note -51p.

Available from--National Council of Teachers of Mathematics, Inc., 1906 Association Drive, Reston, Virginia 22091 (\$1.50, discounts on quantity orders)

Pub T, pe- Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descrip 5-Elementary School Mathematics, Elementary Secondary Education, "Guidelines, Instructional Materials, Learning Activities \*Mathematics Education, Measurer ent, \*Metric System, \*Resource Materials, Secondary School Mathematics, \*Teaching Guides

This booklet gives a brief history of the metric system up to the present time. A detailed explanation of the international system of units (SI units) for length, area, volume, mass, temperature, and time is included. Also included are five check-up easts with answers for the measures of length, area. volume, and weight, as well as tables of all metric prefixes and of practical units for commerce and trade. A third section contains general guidelines for teaching the metric system with specific directions for spelling, nunctuation, and use of metric symbols. The fourth section contains classroom activities, lists of recommended materials, and instructions for student-made learning aids. (JBW)

1648 ED 115 488

Bitter, Gary G. Geer, Charles Materials for Metric Instruction, Mathematics Education Reports.

ER's Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio

Spons Agency National Inst. of Education (DHEW), Washington, D.C.

Pub Date Aug 75

Available from Ohio State University, Center for Science and Mathematics Education, 244 Arps Hall, Columbus, Ohio 43219 (1790)

Pub Type Reference Materials - Bibliographies 0315

EDRS Price - MF01 PC04 Plus Postage.
Descriptors - \*Audiovisual Aids, \*Bibliographies. Citations (References), Elementary School Mathematics, Elementary Secondary Education, Films, Filmstrips, Instructional Materials, "Mathematics Education, Mathematics Materials, Measurement, "Metric System, Resource Materials, Secondary School Mathematics, Slides This compilation lists available metric kits (41 listings), task cards (8 listings), films (24 listings), films strips (36 listings), slides (4 listings) and other miscellaneous metric materials (13 li-tings). The bibliography is intended as a quick reference or source of information for supplementary metric materials. For each entry the source, cost, level of learning, and a brief description are included. No product judgments are made, and inclusion on the

list does not imply endorsement of the product ED 115 482

Prigge, Glenn, E., Metric Measurement.

North Dakota Univ., Grand Forks. Dept. of Math-

ematics. Pub Date 75

(JBW)

Pub Date 1/5
Note-101p.
Pub Type-Guides - General (050)
EDRS Price - MF01/Pr J5 Plus Postage.
Descriptors-Elementary School Mathematics.
Instruction, Marbematics, Materials, Measurement, "Metric System, "Resource Materials, 48 mondary School Mathematics, Teacher Deve-\*Secondary School Mathematics, Teacher Developed Materials

This resource book of metric lessons was propared by the Metric Systems Class at the University of North Dakota, Length, area, volum an espacity, mass and weight and temperature are developed through schniques such as puzzles, manipulative devices, and experiments. Activities are described in terms of materials needed, directions, and followup questions and/or activities. There is a wide variety of useful metric activities for each measurement concept (JBW)

1650 ED 113 166 Measurement with Metric. A Resource Handbook. Field Test Version.

Oregon State Dept. of Education, Salem. Pub Date-75

Note-48p.; occasional marginal legiblity

Available from Documents Clerk, regon Department of Education, 942 Lanca or Drive, N.E. Stem, Oregon 97310
Pub Type - Guides - General (050)
EDRS Price - MF01/PC02 Flus Postage.

Descriptors-Experiential Learning, Higher Education, Instructional Materials, Laboratory Procedures, \*Mathematics Education, \*Measurement, \*Metric System, State Departments of Education, \*Teacher Education, Teaching Guides, \*Teaching

This handbook, prepared field-test version, is intended to provide in-service teachers with "guidance in the development of the basic concepts of measurement." The basic assumption on which this guidance is based is that "hands-on" experience is the most appropriate method of teaching metric measurement. An additional premise is that students should learn to think in the metric system, and not to convert from the English to the metric system. The handbook is divided into five sections. After the rationale for teaching the metric system is presented in part one, a variety of activities for teachers' use in developing pre-measurement and measurement skills is described in part two. Section three is designed to aid in the planning and conducting of metric workshops, and section four, on implementation, describes materials needed. A glossary of terms and a bibliography comprise section five (SD)

1651 FD 102 A Guide to Teaching the Metric system, Pennsylvania State Delic of Education Harrish at Bureau of Curriculus Services Report No Bull-1 Pab Date 74

Pub Date

Pub Type Guides - Geren, (1050) EDRS Peice - MF01 PC01 Plus Postage Descriptors Ben and Objectives Connection, Flementary mada y Education, Instruction. \*Instructional Materials, Learning Activities, 
\*Mathematics Education, \*Measurement, \*Metric System, \*Teaching Guides, Leaching Methods. Units of Study

This publication is intended to serve as a guide for to where introducing the metric system to clemen tary a "sec ary school students. Suggestions are based com the premise that students learn bewhen to adjunt object in activities using the mersystem, with few comparisons to our traditional English system of measurement. The soklet in cludes a statement of the need for met a instruction a summary of metric terminology, a list of advantages of the metric system, a set of relevant behavioral objectives, and some specific teaching suggestions. References and a list of addresses from which to obtain additional metric teaching materials are included (C-3)

1652 ED 096 139

Sisk. Diane

Liter - Metric Volume.

Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del

Spons Agency National Science Foundation, Washington, D.C. Report No. NSF-GW-9703

Pub Date 30 Jun 73

Note - 8p. Pub Type - Guides - General (050)

Descriptors Behavioral Objectives, "General Science, Instruction, "Instructional Materials, "Measurement, Metric System, "Middle Schools, \*Programed Instruction, Science Education, Secondary School Materials, Units : Identifiers \*Del nce, Teacher Developed ady:

System

:al program, developed as part This autoinstruct of a general science course, is offered for students in the middle schools. Mathematics of fractions and decimals is considered to be prerequisite knowl edge. The behavioral objectives are directed toward mastery of determining volumes of solid objects using the water displacement method as well as by using measurements made with a metric ruler. The equipment needed is listed. Time effortment is 12 minutes. A bibliog only is included with the student script (EB)

1653 ED 096 128

Sisk. Diane

Mass - Metric Weight.

Mass - Metric Weight.
Delaware State Dept. of Public Instruction, Dover.
Del Mod System, Dover, Del.
Dons Agen v. National Science Foundation.
Washington, C.C.
Report No. MSF-GW 6703
Pub Date - 30 Jun 73

Note : 15p. l'ub Type : Guides : General (050)

Pub Type Guides - General (c. c.)

EPRS Price - MF01/PC01 Plus Postage.

Chicagonal Objectives, \*General Descriptors -Behavioral Objectives, \*General Science, Instruction: \*Instructional Materials, \*Measurement, Metric System. \* 1idd schools, \*Programed Instruction, Science Educ. on, Secondary School Science, Teacher Developed Materials, Units of Study Identifiers "Del Mod System

This appendix and low level achievers, is directed toward a course in general science in middle schools. Ma nematics of fractions and decimals to described as a prerequisite to the use of the packet. The behavioral objectives are listed. Both involve the students' determining mass, first to the nearest tenth of a gram and a second, to the nearest onetenth of a gram, using liquids and gases. The equipment needed is listed. A student guide, a vocabulary list and a copy of an evaluation exercise, with instructions and answers, are prepared for the teacher.



1654 ED 096 126 Metric System.

Detaware State Dept. of Public Instruction, Dover., Del Mod System, Dover, Del

Spons Agency-National Science Foundation, Washington, D.C. Report No.—NSF-GW-6703

Pub Date-30 Jun 73

Note---8p.

Study

Pub Type- Guides - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—\*General Science. \*Measurement.
Metric System. \*Middle Schools. \*Programed Instruction. Science Education. \*Secondary School Science, Teacher Developed Materials, Units of

Identifiers-\*Del Mod System

This autoinstructional unit deals with the identification of units of measure in the metric system and the construction of relevant conversion tables. Students in middle school or in gia-.eu, taking a General Science course, can handle his learning activity. It is recommended that high, middle or low level achievers can use the program. E ghteen minutes is the suggested time needed. Three behavioral objectives are given and the equipment and materials needed to help the students achieve the objectives are listed. A stude it guide and a vocabulary list are also included in the packet. (EB)

1655 ED 093 723

Higgins, Jon L. Ed.

A Metric Handbook for achers.
National Council of Teach. S of Mathematics, Inc., Washington, D.C.

Pub Date- --Note-132p.

Available from-The National Council of Teachers of Mathematics, 1906 Association Drive, Restor Virginia 22091 (\$2.40)

Pub Type— Guides - General (050) EDRS Price - MF01 Plus Postage. PC Not Availa-

ble from EDRS.

Descriptors---Curriculum. escriptors—Curriculum. Elementary School Mathematics, Experiential Learning, \*Instruction, \*Instructional Materials, Learning Activities, \*Mathematics Education, \*Measurement, \*Metric System. Secondary School Mathematics. Teaching Methods

This handbook has been compiled to provide a reference for teachers at all levels who are implementing the metric system in their classroom. It includes practical suggestions and recommendations for teaching the metric system, as well as popers identifying and discussing the fundamenta mathematical and psychological issues underlying the teaching of the metric system in the schools. The articles some reprinted from recent issues of the "Arithmetic Teacher," some written en ecially for this publication are organized under two headings. Introducing the Metric System: Teaching the Metric System: Activities: Teaching the Metric System: Guidelines; Looking at the Measurement Process; and Metrication, Measure, and Mathematics. (Editor DT)

ED 090 027 1656 Brief History of Measurement Systems with a Chart of the Modernized Metric System.

'ational Bureau of Standards (DOC), Washington, D.C.

Report No. - NBS-SP-304A Pub Date--Oct 72

Note--4p

Available from Superintendent of Documents. Government Printing Office, Washington, D.C. 20402 (Stock No. 0303-01073, \$0.25)
EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Federal Legislation Government Publications, \*history, International Organizations, Mathematics Education, \*Measurement, \*Metric System, \*Standards Temperature.

Weight

A short discussion of the need .o. measurement and the development of ancient measurement systems is given. The English system is traced through its transitions. An account of the development of the metric system is presented from the original defining of the standards through to the recent gencral conferences on its revision and simplification. A chart of "The International System of Units" (the modern m tric system) is given which explains the a tase units. (! " ,

1657

ED 086 551 Vegus, LeRoy

Let's Use the Metric System: A Supplement to Mathematics K-6.

New York State Education Dept., Albany Bureau of Elementary Curriculum Development

Pub Date - 73 Note-- 15p.

EDRS Price - MF01 OC01 Plus Postage.

Descriptors -- \*Carriculum, \*Elementary School Mathematics, Guides, Instruction, Instructional Materials, Learning Activities, \*Measurement, \*Metric System, Objectives, \*Teaching Methods This alletin provides elementary school teachers with some information about the metric system and suggestions for teaching it. A history odevelopment of the system is given followed by a grade by grade guide to objectives and activities to be used with lessons on measurement with the metric system. The activities stress the decimal character of the metric system and provide opportunities for the students to gain an intuitive feeling for the comparative size of the various units of measure (JP)

1658 ED 085 251 Metric Exercises. Lively Activities on Length. Weight, Volume, and Temperature.

National Science Teachers Association, Washington, D.C. Pub Date—73

Note-35p; Metric ruler, thermometer, and centimeter cube not available from EDRS

Available from—National Science Teachers Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 (Stock No. 471-14664, \$6.00) EDRS Price-MF01 Plus Postage, PC Not Available to the price-MF01 Plus Postage PC Not Available to the price-MF01 Plus Plus Postage PC Not Available to the price-MF01 Plus Postage PC Not Available to the price-PC Not

ble from EDRS.

Descriptors—\*Activity Units, Elementary School Mathematics, \*Instructional Materials, Manipulative Materials \*Mathematics Education, Measurement, \*Metric System, \*Science Education, Secondary School Mathematics, Worksheets

This booklet of exercises and activities to help students learn the fundamentals of the metric system is designed for elementary, junior high school and senior high school students. It is organized under four topics (Length, Weight, Volume, and Putting it All Together Activities) and comes packaged with an ungraded thermometer, metric rulers, and a 1-gram centimeter cube. The activities and exercises can be simplified or extended to meet the needs of the class or individual students. An answer key is included as the final section. (JP)

ED 069 524

Cox. Philip L.

Exploring Li-Oakland Cor

Explining Lind r Measure, Teacher's Guide.
Oakland Congress Schools, Pontiac, Mich.
Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Pub Date-Oct 69

Pub Date—Oct 69
Grant—OEG-68-05635-0
Note—226p.: Revised Edition
EDRS Prins—MF01/PC10 Plus Postage.
Descriptors—Curriculum. Instruction, \*Instructional Materials, Low Ability Students. Mathematics Education. \*Measurement, Metric System. Objectives, \*Secondary School Mathematics Policy School Mathematics ematics, \*Teaching Guides, Units of Study

Identifiers-Elementary Secondary Education Act Title III

This guide to accompan, "Exploring Linear feasure," contains all of the student malerials in Measure, contains all of the student materials in SE 015 334 plus supplemental teacher materials. It includes a listing of terminal objectives, necessary equipment and teaching aids, and resource materials. Answers are given to all problems and suggestions and activities are presented for each section. Related documents are SE 015 334 and SE 015 336 through SE 015 347. This work was prepared under ar. ESEA Title III contract. (LS)

ED 069 523

Cox. Phili 1.

Exploring Line deasure. Oakland County Schools, Pontiac, Mich.

Spons Agency—Bureau of Elementary and Secondary Education (CHEW OE), Washington, D.C.

Pub Date—Oct 6° Grant –OEG-68-05635-0

Note-95p; Revised Edition

EDRS Price - MF01 PC04 Plus Postage.

Descriptors Curriculum, Instruction, \*Instructional Materials, Low Ability Students, Matheinatics Education \*Measurement, Metric System, Objectives, \*Secondary School Mathematics, Units of Study, Worksheets Identifiers - Elementary Secondary Education Act Title III

This material is an instructional unit on measuring and estimating. A variety of activities are used with manipulative devices, workshiets, and discussion questions included. Major topics are estimating lengths, accuracy of measurement, metric system. scale drawings, and conversion between different units. A teacher's guines also available. Related documents are SE 015 225 - SE 015 347. This work was prepared under an ESEA Title III contract. (US)

# **NUMBERS AND** NUMERATION

1700 ED 183 411 Snyder, Pat

Prime Numbers. Topical Module for Use in a Mathematics Laboratory Setting.

Regional Center for Pre-Coll. Mathematics, Denver. Cole.

Spons Agency-National Science Foundation. Washington, D.C.

Pub Date-74

Grant-NSF-GW-7720

Note-32p.; For related documents, see SE 030 304-322

Pub Type- Guides - Classrou: 1 - Learner (051) --Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC02 Plus Postage

Descriptors---\*Activities, Division, \*Learning Laboratories. Mathematical Concepts, Mathematics Curriculum. \*Mathematics Instruction, Multiplication, Number Concepts, \*Prime Numbers, Secondary Education, \*Secondary School Mathematics, Worksheets

The purpose of this module is to acquaint students with the terms prime, composite, and factor. This is done by offering a definition of each term, then reinforcing its meaning through activities. (Author MK)

1701 ED 173 138

Junior High School Mathematics Units, Volume I, Number Systems. Commentary for Teachers.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency-National Science Foundation. Washington, D.C. Pub Date-59

Note-186p.; For related documents, see SE 027 373; Contains occasional light and broken type

Pub Type - Guides - Classroom - Teacher (052) EDRS Price - MF01/PC08 Plus Postage.

scriptors-Curriculum, \*Curriculum Guides, ocimal Fractions. \*Fractions. \*Instruction, Jun-ior High Schools, Math. natics Education, \*Number Concepts. \*Number Systems. Prime Numbers, Secondary Education, \*Secondary School Mathematics

Identifiers-\*School Mathematics Study Group

This is volume one of a three-volume set for teachers using SMSG junior high school text materials. Each unit contains a commentary on the test, answers to all the exercises, a copy of the questionnaire used for evaluating the materi..., and a summary of comments by the teachers using the text. Unit topics include: (1) numeration; (2) natural numbers and zero: (3) factoring and primes; (4) supplementary tests for divisibility and repeating decimais; (5) non-negative rational numbers; and (6) mathematical systems. (MP)

1702 ED:173 107 Junior High School Mathematics Units, Volume I.

Number Systems.

Stanford Univ., Calif School Mathematics Study Group.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date-59

Note-143p.; For related documents, see SE 027 915-916: Contains occasional marginal legibility Pub Type- Guides - Classroom - Learner (05!)

EDRS Price - 3 1/PC06 Plus Postage. Descriptors-Curriculum, Decimal Fractions, Fractions, \*Instruction, Junior High Schools, Mathematics Education, \*Number Concepts, \*Number Systems, \*Prime Numbers, Secondary Education,

"Secondar: School Mathematics, "Tuxtbooks Identifiers—"School Mathematics Study Group

This is volume one of a three-volume SMSG junhigh school mathematics text. This volume contains units concerned with the structure of the number systems of anthmetic. Unit topics include: (1) numeration; (2) natural numbers and zero; (3) factor ig and primes; (4) supplementary tests for divisibility and repeating decimals, (5) the nonnegative rational numbers: and (6) matnematical systems. (MP)

1703 ED 146 002

Batra, Laj. Ed. 4nd Others Topics in Number Theory: The Number Game. Institute for Services to Education, Inc., Washington, D.C.

Spons Agency—National Inst of Education (DIIEW), Washington, D.C.
Bureau No.—BR-7-0967
Pub Date—[70]
Contract—OEC-0-8-070867-0001

Note: 61p.; Appendix material from arD 084-936, For related documents, see SE 019-970-974; Not available in hard copy due to marginal legibility of original document; Page 19 missing; Best Copy Available

Pub Type- Guides · General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—\*College Mathematics, Curriculum, Higher Education, Instruction, \*Instructional Materials, Mathematics, Mathematics Education, "Number Concepts, Secondary School Marhematics, "Teaching Guides Identifiers- "Thirteen College Curriculum Pro-

This teacher's guide contains nine pies in number theory. Suggested questions for the teacher. short investigations, and possible exercises for the student are included. Chapter 1 is an introduction to sequences and series using geoboard activities involving triangular numbers, square numbers, rectangular numbers, and pentagonal numbers. The second chapter concerns prime numbers and generating prime numbers; included is a computer program in BASIC to find all prime numbers less than any given number. Chapter 3 concerns divisors. with geometrical interpretation of the a catest common factor. The next chapter is on congruence of numbers in modular arithmetic with exercises leading to divisibility tests. A team game with rules which can be used for reviewing number theory is presented followed by a chapter on Pythagorean systems. The final chapters of the guide present a brief description of linear diophantine equations.

1704 ED 143 553

Jones, Burton W., Ed. Studies in Mathematics, Volume XIV. Introduction to Number Systems.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency—National Science Foundation, Washington, D.C.

Pub Date—66 Note—280p.; For related documents, see SE 023 028-041; Not available in hard copy due to marginal legibility of original document

Pub Type— Books (010)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—Algebra, Arithmetic, "Instructional Materials, Junior i gh Schools, "Mathematics, "Number Systems, secondary Education, "Secondary School Mathematics, "Teacher Education, Teaching Guides, Textbo.

Identifiers-School Mathematic: This text was written for junior his school teachers who wish to have more mathematical background on number systems. It is particularly useful for teachers who teach SMSG materials at grades 7 and 8. Chapters it cluded are: (1) Introduction; (2) Numeration; (3) The Whole Numbers; (4) Divisibility and Properties of Whole Numbers; (5) The Non-Negative Numbers Rational; (6) Ratios. Decimals. and Applications; (7) Rational Numbers; (8) The Real Numbers; and (9) Equations and Graphs. The appendices include answers o problems and exercises and a selective bibliography. (RH)

1705

Anderson, R. D., Ed. And Others Studies in Mathematics, Volume VI. Number Systems. Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study

Spons Agency—National Science Foundation, Washington, D.C. Pub Date—61

Note-454p.: For related documents, see SE 023 028-041

Pub Type-- Books (010)

EDRS Price - MF01/PC19 Plus Postage.

Descriptor: Ningral, escriptors alors a, sthmetic Elementary Education tementary School Mathematics, \*Instructional Materials, \*Mathematics, \*Number Systems, \*Teacher Education \*Luching

Guides, Textbooks entifiers: \*School Mathematics Study to oup

This volume was prepared by the Social Mathematics Study Group (8MSG) to help elementary teachers develop a sufficient subject matter competence in the mathematics of the elementary school program Background material for related SMSG materials for grades four through eight are included Chapters—the book are (1) What is Mathematics (2) Numeration, (3) Whole Numbers, (4) Rational Number System, (5) Coordinates and Equations: and (6) Real Numbers. The appendices include additional materials related to the topics and answers to questions and problems in the text (RH)

1706 Allen, Frank B. And Others ED 143 529

Mathematics for High School, Intermediate Mat: ematics. Part 1, Supplementary Unit I. Development of the Real Number System, Revised Edition.

Stanford Univ., Calif. School Mathematics Study

Group
Spons Agency Nat all Science Foundation,
Washington, D.C.

Pub Date 6.7

Note 95p. Pub Type Books (010)

EDRS Price - MF01 PC04 Plus Postage.

Descriptors - \*Air ibra. Arithmetic. \*Instructional Materials. \*Number Concepts, Secondary Education. \*Secondary School Mathematics. Supplementary Reading Materials. \*Textbooks

Identifiers . \*School Mathematics Study Group This is a supplementary unit to Mathematics for High School, Intermediate Mathematics, Part 1. In this publication, real numbers and rules for operating them are examined. The study begins by examining whole numbers and some of the properties of addition and multiplication of whole numbers. Most of the basic rules for algebra are developed from

these properties. Included are background information, discussion of topics, exercises and student activities, and answers to exercises and activities (RH)

1707 ED 143 524

Essays on Number Theory 11.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation.
Washington, D.C.
Pub Date 60
Note—77p.; For related document, see SE 023 001.

Contains occasional light and broken type
Pub Type - Speeches/Meeting Paper (150)
EDRS Price - MF01 PC04 Plus Postage.
Descriptors—Algebra, "Instructional Materials,
"Number Concepts, Secondary Education, "Signature ondary School Mathematics."

Identifiers- \*School Mathematics Study Group

This supplement was written for students who are especially good in mathematics and who have a lively interest in the subject. It is suggested that the supplement be read with pencil and paper in hand All questions should be considered and answered, if possible, when they occur. A casual reading of the supplement... in most cases, unprofitable. For the most part, the units are independent of each other. Some of the sections in this publication relate to the chapters of the eleventh-grade material of SMSG Intermediate Mathematics. Included in this supplement are suggestions for use of the materials and eight chapters on arithmetic functions, the Euclidean algorit, mand linear diophantine equations, the Gaussian integers. Fermut's Method of infinite Descent, and approximation of irransonals by rationals. (P.H)

ED 143 523

Essays on Number Theory I.

Stanford Univ. Ca School Mathematics Study

Spons Agency-National Science Founcation, Washington, D.C.

Note -39p.; For related document, see SE 023 002

Pub Type—Speeches Meeting Papers (150)
EDRS Price • MF01/PC02 Plus Postage.
Descriptors—Algebra. \*Instructional Materials.
\*Number Concepts. Secondary Education, \*Sec-

ondary School Mathematics Identifiers---\*School Mathematics Study Group Not all of mathematics can be taught in formal

textbooks. Just as an English course can be enlivened by selections from literature, a mathematics



course can gain depth and interest from special readings. This volume can be read in conjunction with the SMSG First Course in Algebra or Intemediate Mathematics. It introduces the subject of number theory. Included are selections on (1) prime numbers (2) congruence, and (3) the fundament of theorem of arithmetic. A section containing are swers to questions completes the publication. (Author (RH)

1709 Rogers, Samira ED 141 172

Laboratory Mathematics, Carriculum Booklet 6 -Sember Theory.

Anderson County School District 2, Honea Path,

Spons Agency—But au of Elementary and Secondary Education (\* W. OE), Washington, D.C. Pub Date - ?

Note-27p.; For related documents, see SE 022 692-699; Not available in hard copy due to margiral legibility of original document

Pub Type: Guides - General (050) EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors -Educationally Disadvantaged, \*Elementary School Matnematics, Elementary Sec-Education, Experiential Learning, \*Fundamental Concepts, Individualized Instruction, \*Instructional Materials, Laboratory Procedures, \*Low Achievement, Mathematics Education, \*Numbers, \*Units of Study, Worksheets

Identifiers-Elementary Secondary Education Act Title III

This booklet is one of a set of five booklets which comprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students," a nationally validated Title III ESEA project. This publication provides evaluation materials and student materials related to number theory. Topics included in this booklet are prime and composite numbers. odd and even numbers, integers, divisibility, and exponents. The project was designed for middle school students (Grader, 5-8). (RH)

ED 127 195

Adams, Patricia, Ed. Numbers And Their Properties: MINNEMAST Coordinated Mathematics - Science Series, Unit

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center.

Spons Agency—National Science Foundation, Washington, D.C. Pub Date—71

Note 155p. For related documents, see SE021201-234, Photographs may not reproduce For related documents, see well, Contains small print in Worksheets Available from - MINNEMAST, Minnemath Cen-

ter, 720 Washington Ave., S.E., Minneapolis, MN 554:4

Pub Tyre - Guides - General (050)

EDRS Frice - MF01/PC07 Plus Postage.

Descriptors \*Curriculum Guides, Elementary Education, \*Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum, "Interdisciplinary Approach, Learning Activities, Mathematics Education, "Muliplication, Number Systems, Primary Education, Process Education, Science Education, Units Study Identifiers "MINNEMAST, "Minnesota Mathematics and Science Traching Project

This volume is the twenty-seventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit reviews concepts related to multi-plication which were introduced in earlier units. then expands these concepts to include multiplica-tion by zero, the use of placeh ideas in multiplicative problems, multiplication of more than two factors, and the use of the vertical algorithm. Work nertitioning of arrays, using Curtesian proand solving word problems is included (SD)

1711 ED 127 188

Ihng, Elizabeth A., Ed.

Using Larger Numbers: MINNEMAST Coordinated Mathematics - Science Series, Unit 20. Minnesota Univ., Minneapole - Minnesota School Mathematics and Science Center

Spons Agency National Science Foundation, Washington, D C

Pub Date 71

Note 129p. For related documents, see SE021201-234; Photographs may not reproduce

Available from -- MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pub Type - Guides - General (050)

EDRS Price • MF01/PC06 Plus Postage.

Descriptors • \*Curriculum Guides, Elementary Education, • Elementary School Mathematics, \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, Number Concepts, Primary Education, Process Education, Science Education, Units of Study Identifiers—\*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project

This volume is the twentieth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers. this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of three groups of lessons and activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit begins with three computational games, and then provides a sequence of thirteen lessons aimed at building skill at addition and subtraction with large numbers. The final set of lessons is related to building a weather station. (SD)

1712

ED 127 184

Vogt, Elaine E., Ed. Numbers and Measuring, Learning With TOR: MINNEMAST Coordinated Mathematics Science Series, Unit 16.

Minnesota Univ., Minneapolis. Minnesota School Mathematics and Science Center

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date - 71

Note--- 159p.: For related documents, see SE021201-234; Photographs may not reproduce

Available Som- MINNEMAST, Minnemath Center, 72... & ashington Ave., S.E., Minneapolis, MN 55414

Pub Type— Guides - General (050)

EDRS Price - MF01/PC07 Plus Postage.

Descriptors— \*\*Curriculum Guides, Elementary Education, \*\*Elementary School Mathematics, \*Elementary School Science, Experimental Curriculum, Interdisciplinary Approach, Learning Activities, Mathematics Education, "Messagement. Number Concepts, \*Number Systems, Primary Education, Process Education, Science Education, Units of Study Identifiers -\*MINNEMAST, \*Minnesota Math

ematics and Science Teaching Project

This volume is the sixteenth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades. Intended for use by second-grade teachers, this unit guide provides a summary and overview of the unit. a list of materials needed, and descriptions of five groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials -- included in the book This unit begins with a review of ordering corcepts and then introduces linear measurement to the nearest half inch, measuring and adding tractional units, and measuring diameters. I diretimferences. Fourteer, lessons are devoted systems of numeration and place value. The measurement of weight, an introduction to negative numbers, and our monetary system are the subjects of other lesson se1713

ED 127 177

Blair Kay W. Thomson, Polls V. Numbers and Counting: MINNEMAST Coor-

dinated Mathematics - Science Series, Unit 9, Minnesota Univ. Minneapolis, Minnesota School Mathematics as I Science Center

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 7 Note 123p., For related documents, see SE021201-234

Available from MINNEMAST Minnemath Cen-20 Washington Ave., S.E., Minneapolis, M.N. 55414

904 14
Pub Type Guides - General (080)
EDRS Price - MF01 PC05 Plus Postage.
Descriptors \*Curriculum Guides, Elementary
Education, \*Elementary School Mathematics. \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Number Concepts, Primary Education, Process Education, Science Education, Units of Study Identifiers - \*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project
This volume is the ninth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grudes. Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other structional materials are included in the book. The

ons in this volume are organized into four secticus: (1) c --to-one correspondence. (2) tallying, counting, and rading numerals from 0 to 20, (3) writing numerals and counting practice, and (4) ordering and the older-signs. A variety of topics related to these threads is included; among these are estimation of large numbers and names for numbers in other languages. (SD)

ED 127 174

Dyrud, Grace H. Page, Laura M. Numeration: MINNEMAST Coordinated Math-

ematics - Science Series, Unit 6.
Minness ta Univ., Minneapolis Minnesota School
Mathematics and Science Conter
Spons Agency National Science Foundation,
Washington, D.C.
Pub Date: 71

Note 113p: For related documents, see SE021201-234 Available from MINNI MAST, Minnemath Cen-

ter, 720 Washington Ave., S.E., Minneapolis, MN 55214

Pub Type - Guides - General (050)

EDRS Frice - MF01 PC05 Plus Postage.

Descripto s \*Curriculum Guides, E mentary
Education, \*Elementary School Mathematics. \*Elementary School Science, Experimental Cur-riculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Nur-Concepts, Primary Education, Process Educat

Science Education, Units of Study Identifiers \*MINNEMAST, \*Minnesota Matiematics and Science Teaching Project

This volume is the sixth is a series of 29 coordinated MINNEMAST unit in mathematics and science for kindergarten and the primary grades Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of five groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. The five sets of lessons in this volume review the idea of correspondence between sets, and introduce counting and numeration by fallying and with numeral symbols. An optional section forcers the values of coins, (SD)

1715

ED 123 081

Cosler, Norma, Ed.

Individualized Math Problems in Square Root. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem, Oregon State Dept. of Education, Salem Circer and Vocontonal Education Section P Date 74 Note 17p., For related documents, see SE 620

Available from -- Continuing Education Publicstions, P.O. Box 1491, Portland, Oregon 97207 Pub Type-- Guides - General (050)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors—"Algebra, Geometry, Individualized Instruction. "Instructional Materials, Mathematical Applications, Mathematics Education, Number Concepts. Problem Sets. Secondary Education. Secondary School Mathematics. Vocational Education

Identifiers - Oregon Vo Tech Math Project. Square Roots

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume require the computation of square roots. primarily in the context of using the Pythagorean Theorem. Problems a.e drawn from the vocational areas of electronics, industrial, electrical, and hydraulies techv, forestry, auto mechanics, and construction.

1716

ED 123 074

Cosler. Norma, Ed.

Individualized Math Problems in Logarithms. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem, Oregon State Dept. of Education, Salem. Caroor and Vocat mal Education Section. Pu' Date-74

No - -39p.; For related documents, see SE 020 6. 648

Available from-Continuing Education Publications, P.O Box 1491, Portaind, Oregon 97207 Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—\*Algebra, Individualized Instruction,
\*Instructional Materials, Mathematical Applica-\*Instructional Materials, Mathematics Education, \*Problem Sets, Setions, Mathematics Education, \*Secondary School Education. \*Secondary Mathematics, Trigonometry, \*Vocational Education

Identifiers-\*Logarithms, \*Oregon Vo Tech Math Project

THis is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diver e vocations. Solutions are provided for all problems. This volume includes problems involving logarithms, exponents. and logarithms of trigonometric functions. The problems are drawn from the vocational areas of drafting, forest products, forestry, electronics, eleriand work, marketing, and agriculture. (SD)

1717 ED 123 073

Cos . Norma, Ed.

Individualized Math Problems in Integers. Oregon Voluech Mathematics Problem Sets.

Oregon Math Education Council, Salem.; Oregon

State Dept. of Education, Salem. Career and Vocational Education Section.

Pub Date-74

Note-18p.; For related documents, see SE 020 628-648

Available from-Continuing Education Publications, P.O. Box 1491, Portland, Oregon 97207 Pub Type— Guides - General (050)

EDRS Price - MF0! Plus Postage. PC Not Available from EDRS.

Descriptors-Individualized Instruction, \*Instructional Materials, "Integers, Mathematical Applications, Mathematics Education, Number Systems, \*Problem Sets, Secondary Education, \*Secondary School Mathematics, \*Vocational Education

Identifiers-Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Ve-Tech Math Project. Each of these problem packages is organized around a mathematical topic and ontair s problems related to diverse vocation lutions are provided for all problems. This v presents problems involving operations with positive and negative integers. The problems are drawn from the vocational areas of clerical work, aviation mechanics, and forestry. (SD)

ED 114 390

Bernard, Donald And Others Number Patterns and Systems, Learning Activity Module IV.

Florida Univ., Gainesville, Coll. of Education Spons Agency Office of Education (DHEW), Washington, D.C. Teacher Corp.

Note = 18p. Pub Type - Gindes - General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors - Elementary Education, Elementary School Mathematics, Inservice Teacher Education, "Learning Modules, Mathematical Concepts, "Mathematics, "Mathematics Education, "Modern Mathematics, "Teacher Education

This learning module is designed to enable teachers to help children further develop their concepts of the meaning of numbers in our number system (including concepts of quanity, one-to-one correspondence, number order, before-after, greater than-equal to-less than, number patterns, and the structure of our number system). The module contains a rationale, general objectives, specific objeca list of general instructions for the teacher or simeent teacher. The procedures for using the module include a pre-test, a video tape, reading, studying games, several optional activities, and a post-test. A copy of the pre-test and its answer sheet, along with a copy of the post-test and answer sheet, are included. The module also contains games with tri-dominoes. A list of suggested readings and a bibliography complete the module. (RC)

1719 Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6. 1. Number and Numeration. Experimental Edition.

New York State Education Dept., Albany Bureau of Elementary Curriculum Development.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Compensatory Education. Pub Date-74

Note-28p.; Related documents are SE 019 741-

Pub Type- Guides - General (050)

EDRS Price • MF01/PC02 Plus Postage.

Descriptors—Elementary Education. • Elementary School Mathematics, Guides, Instructional Materials. • Laboratory Manuals. • Manipulative Materials, Material Development, Mathematics Materials, \*Number Concepts, Numbers, Teacher Developed Materials, \*Teaching Guides

Identifiers-Elementary Secondary Education Act Title I

his guide describes activities and materials which can be used in a mathematics laboratory approach for a basic mathematics program for grades 1-6. Forty-seven activities, concerning number and numeration, are described by their purpose, suggested grade levels, materials needed, and proce-Concepts presented include number recognition, sets, measurement, estimation, place value, addition, subtraction, multiplication and division facts, prime and composite numbers, mathematical vocabulary, applications, weighing, and monetary values. The booklet contains a list of manipulative mater is for mathematics laboratory use, including improvised materials and games. commercial materials and games, general supplies, and storage containers. (JBW)

ED 094 990

Pedoe, Daniel Pedoe, Marv Mathematics for the Elementary School, Unit 11, Sumeration.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center.

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date--65

Note—136p. Pub Type—Guides - General (050)

EDRS Price - MF01/PC96 Plus Postage.

Descriptors—Addition, Curriculum, "Elementary School Mathematics, Experiential Learning, "Inequalities, Instructional Materials, Number Concept., "Number Systems, Subtraction, "Teaching Guides, Units of Study, Whole Number, Mathematical Mathematics, Subtraction, "Teaching Guides, Units of Study, Whole Numbers, Mathematics, Subtraction, "Teaching Study, Whole Numbers, Mathematics, Subtraction, Subtraction,

bers, Worksheets
Identifier.—MINNEMAST, \*Min. nota Mathematics and Science Teaching Project, Number Line, Properties (Mathematics)

The Mitnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized

by its emphasis on the coor furation of mathematics and science in the elementary school curriculum Units are planned to provide children with activities in which they learn various concepts from both subjest areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited Content is presented in story fashion. The stones serve to introduce concepts and lead to activities. Imbedded in the parates that accompany the stories are examples of the concepts presented This unit stresses the geometric it pretation of number on the number line. The notions of "greater than," "less than," and "between" are presented for reviewed) by reference to the number line. Egyption and Roman numeration systems are explored and an intuitive presentation of non-decimal systems is contained in some of the activities. Workshiets and commentaries to the test her are provided and additional activities are sugarsted (JP)

ED 094 989 Gallion, Z. T., Ed., Myers, Donald E., Fd. Mathematics for the Flomentary School, Unit 8, Number Line

Minnesota Univ. Minneapolis Minnesota School Mathematics and Science Center

Spons Agency National Science Foundation.
Washington, D.C.
Pub Date 65

Note 109p Pub Type Guides - General (050)

EDRS Price - MF01 PC05 Plus Postage.
Descriptors \*Addition, Curriculum, \*Elementary School Mathematics, Experiential Learning, Instruction. \*Instructional Materials, Number Concepts: \*Subtraction, \*Teaching Guides, Units of Study, Whole Numbers, Worksheets Identifiers - Minnemast, \*Minnesota Mathematics and Science Teaching Project, Number Line, Number Operation B.

Number Operations, Properties (Mathematics)
The Minnesota School Mathematics and Science
Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics

and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subjest areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented This unit presents to the child the "core" of the program in that most of the topics preceding this one are background material. The corration of addition is presented as an operation or the number line The content covers inequality (greate: than), commutativity, even and odd numbers and introduces the operation of subtraction. Worksheets and commentaries to the teacher are provided and additional activities are suggested. (JP)

1722 ED 094 988

Gallien. I. Ed. And Others Mathematics for the Elementary School, Unit 7. Introduction to the Number Line.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Co Spons Allency-National Sci. ce Foundation.

Washington, D.C. Pub Date -65

Note 52p. Pub Type-- Guides - Gener (050)

EDRS Price - MF01 PC03 Plus Postage.

EDRS Price - MF01 PC03 Pags Postage.
Descriptors—Curriculum, "Elementary School Mathematics, Experientias Learning, "Grant metric Concepts, Instruction, "Instructional Marials, Number Concepts, "Set Theory, "Tacking Gudes, Units of Study, Worksheets Identifiers—MINNEMAS", "Minnesota Marian and Science Tacking Persistent

ematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis . : the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sight and exloited. Content is presented in story fashion. The stories serve to introduce concepts and lead to ac-tivities. Imbed-led in the pictures that accompany the stories are examples of the concepts presented



This unit is designed to provide an adequate background for the presentation of the number line in the next unit. Elementary geometric concepts are presented (or reviewed) such as point, line, etc. Intersection is treated in order to establish the concept that "the interpretation of addition as union" predicated on the presence of disjoint sets. Wirksheets and commentaries to the teacher are prov-

ided and additional activities are suggested. (JP) 1723 ED 094 985 Powell, Bonnie. Ed. 4nd Others

Mathematics for the Elementary School, Unit 4, Sets, Numbers, Numerals.

Minnesota Univ., Minneapolis Minnesota School Mathematics and Science Center

Spons Agency-National Science Foundation, Washington, D.C.

Pub Date -65 Note -- 1810.

Pub Type- Guides - General (050)

EDRS Price - MF01/PC08 Plus Postage.
Descriptors - Curriculum, \*Elementary School Mathematics, Experiential Learning, Instruction. \*Instructional Materials, \*Number Concepts, Numbers, \*Set Theory, \*Teaching Guides, Workspecis

Identifiers - MINNES - ST. \*Minnesota Mathematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subject areas. Each subject is used to support and reinforce the other where appropriate; with common techniques and concepts being sought and exploited. Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented. This booklet contains a unit on numbers and set concepts. The topics include representing numbers by constructing or describing equivalent sets, using words to represent numbers and using special written symbols to represent numbers. Some of the activities are designed for using the "Minnebars," in which the length of a bar represents a number. Although the for dintroduction of addition does not cour until U. 7, the Minnebar activities serve as pre-addition exercises. Union and intersection of sets are also introduced in this unit. Worksheets and commentaries to the teacher or provided and additional activities are suggested (iP-

Powell, Bonnie, Ed. And Others

ED 094 983

Mathematics for the Elementary School, Unit 2, Sets.

Minnesota Univ., Minneapolis, Minnesota School, Mathematics and Science Center.

Spons Agency National Science Four-ration, Washington, D.C. Pub Date 65

Note: 100p Pub Type: Guides - General (050)

EDRS Price MF01/PC64 Plus Postage. Descriptors arriculum, "Elementary School Mathema - s. Experiential Learning, Instruction. \*Ir ructional Materials, Number Concepts, \*Set Theory, \*Teaching Guides, Worksheets Identifiers—MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project

The Minnesota School Mathematics and Science caching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics and science in the elementary school curriculum. Units are planned to provide children with activities in which they learn various concepts from both subnut areas. Each subject is used to support and reinarce the other where appropriate, with common erhitiques and concepts being sought and ex-ploited Content is presented in story fashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany he stories are examples of the concepts presented. This booklet presents a unit on sets. The topics covered are set membership, conservation of sets, the empty set, 1-to-1 correspondence matching sets, and the concept of subsets. Worksheets and commentaries to the teacher are provided and additional es are suggested (II)

FD 090 003

Thompson, Russ Fuller, 4thert
Basic Math I, Package 01-04, Factoring, Prime Numbers and Divisibility.

Arnold Public Schools, Nebr Spons Agency - Bureau of Elementary and Secondary Education (DHEW CE), Washington, D C

Pub Date 72
Note 21p.; For related documents see SE 617 553
through 555 and SE 017 557 through 575
EDRS Price - MF01 PC01 Plus Postage.

Descriptors Grade 9, Individualized Instruction, \*Instructional Materials, \*Number Concepts, Objectives, Prime Numbers, \*Secondary School Mathematics, \*Teaching Guides, \*Tests, Whole Numbers

Identifiers—Elementary Secondary Education Act Title III, \*General Mathematics

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials witten for the program are to be used with audivisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work for this package covers prime numbers, prime factorization, number multiples, least common multiple, and tests for divisibility. This work was prepared under an ESEA Title III contract. (JP)

1726 ED 090 000

Thompson, Russ Fuller, Albert Basic Math I, Package 01-01, Numeration.

Arnold Public Schools, Nebr.

Spons Agency—Bureau of Elementary and Sec. ary Education (DHEW/OE), Washington, D.C. Pub Date-72

Note-24p.; For related documents, see SE 017 554 through 575

EDRS Price · MF01/PC01 Plus Postage.

Descriptors—Grade Individualized Instruction, \*Instructional Mail ils, \*Number Concepts. Numbers, Number Systems, Objectives, \*Secondary School Mathematics, \*Teaching Guides. • Tests

Identifiers- Elementary Secondary Education Act Title III, \*General Mathematics, Place Value (Mathematics), Properties (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-goode algebra and basic mathematics students. Materials written for the program are to be used with audiovisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package deals with numeration and place value. This work was prepared under an ESEA Title III contract. (JP)

1727 ED 084 167

Blanford, Doris K. Thornton, James E. Jr. Pure Mathematics I. Mathematics (Experimental): 5211.31.

Dade County Public Schools, Miami, Fla-

Pub Date 72

Note - 28h; An Authorized Course of Instruction

EDRS Price MF01/PC02 Plus Postage.

Descriptors: Schavioral Objectives, \*Curriculum, Grade \*; Graphs, Instruction, Integers, Mathematics Education, \*Number, Concepts, \*Objectives, Rational Numbers, \*Secondary School Mathematics, Sct. Theory, \*Teaching Gilies, Tests

Identifiers... \*Quinter for Program

This is the first in a series of three guidebooks of minimum course content for gifted grade seven st dents who will begin algebra in grade eight. Tr. topics covered include integers, sets, number prop erties, open senten its, and graphing; concepts at a stressed. Overall course goals are specified, a course outline, performance objectives, suggested teaching strategies and text references are listed. A protest and a positest a calso included. (Fig. the c let in the serie | see ED 0"

ED 084-164 Gordon, Mariora Wilson, Pamela

Mathematical Structures 1, Mathematics (Experimenta: 5211.21

Dade County Public Schools, Miann, Fla Pab Date

Note 24p. An Archorized Course of Instruction

Note 24p. An Vy horized Course of Instruction for the Quantiester Program

EDRS Price MF97 PC01 Plus Postage.
Descriptors Behavioral Objectives \*Curriculum Fractions, Grade 7, Instruction, Mathematics Education, \*Slimber Concepts, \*Objectives, Prime Numbers, \*Secondary School Mathematics, \*Tenching Guide, Tests, W. e. Numbers Identifiers \*Quinmester Program

This is the first of two guidebooks for Grade " recommended to build fundamental concepts necessary for success in algebra. Topics covered include numeration systems, operations in non-decimal bases, whole numbers, factors and primes, and fractions. Goals for the course are stated, then, for each topic, performance of a tives, a course outline, references, and suggested teaching strategies are provided Posttest items are included, along with 1 list of twelve references. For the second guidebook in this series, see FD 067-293 (DM)

1729 ED 084 159

Beardsley, Lech M. Order in Number, Mono, aph No. 3.

Michigan Council of Teachers of Mathematics Pub Date Oct 73 Note 42p., Guidelines for Quality Mathematics

Teaching Available from MCTM Publications Chairman, 2165 East Maple Road, Birmingham, Michigan 48008 (\$1.00)

EDRS Price - MF01 PC02 Plus Postage.
Descriptors Curriculum, Educational Games,
\*Elementary School Mathematics, \*Experiential Learning, Guidelines, \*Instruction, Mathematics Education, \*Number Concepts, \*Teaching Guides, Teaching Methods

This monograph attempts to provide the teacher with examples, techniques, and tips for developing order in number. Topics covered include pre-number order and classification; beginning number activities; number lines; the 100-square counting chart; ordering the integers, fractional numbers, and games, counting rhymes, and other activities. A vocabulary list, a resource list with names and addresses of suppliers, and a short hibliography are included. (DT)

ED 079 132

Blanford, Doris K. Thornton James E. Jr Pure Mathematics 3, Mathematics (Experimental): 5211.33.

Dade County Public Schools, Miami, Fla

Pub Date

Note 21p., An Authorized Course of Instruction for the Quinmester Program EDRS Price - MF01 PC01 Plus Postage.

Descriptors Behavioral Objectives, C. Indian, Instruction, Mathematics Education, \*Number Concepts, \*Objectives, \*Secondary School Mathematics, \*Teiling Guides, Tests Identifiers \*C immester Program

Through The Concepts of the Concepts o

This guidebook specifies minimim course content covering number systems and makes, rational numbers and operations with rationals, and solving some ple open sentences. Course touls are stated, the, performance objectives, a course outline, references and suggested teaching strategies are listed for each topic covered. Posttest items and a list of 15 references are included. (DT)

1731 ED 069 522

Looms, Challe

Cuisenaire Daily Calendar of a Primary One Teacher, How-I-Did-It.

ity School District, Moniversit

Pub Date Sep 65

Note 52; EDRS Price - MF01 PC03 Plus Postage. Descriptors \*Elementary School Mathematics, Experiential Learning, \*Instruction, Instructional Materials, Laboratory Procedures, \*Manipulative Materials, \*Number Concepts, Symbols (Mathematics), Teaching Methods, Whole Numbers Identifiers \*Cuisenaire Materials

A teacher's daily record of activities and strategies for roughing arithmetic to a class of first grade

gies for teaching arithmetic to a class of first grade students exclusively through the use of Cusenaire rods is described. Worksheets and the mid-term test are included. A short evaluation of the results of the instructional met: I concludes the paper. (DT)

1732 Ewins Diane

Learning Activity Package, Algebra. Niriety Six High School

Pub Date

Note: 314p EDRS Price - MF01 PC13 Plus Postage.

Descriptors— "Algebra, Analytic Geometry, "Curniculum, "Individualized Instruction, "Instructional Materials, Mathematics Education, Number Systems, Objectives, \*Secondary School Mathematics, Set Theory, Teacher Developed Materials, Teaching Guides, Uries of Study

ED 069 504

A set of ten teacher-prepared Learning Activity Packages (LAPs) in beginning algebra and nine in intermediate algebra, these units cover sets, properties of operations, number systems, open expressions, solution sets of equations and inequalities in one and two variables, exponents, factoring and polynomials, relations and functions, radicals, rational expressions, coordinate geometry, quadratic equations and inequalities, quadratic functions, and systems of equations and inequalities. Each contains a rationale for the material; a list of behavioral objectives, a list of resources including texts (with reading assignments and problem fied), tape recordings, commercial games, firmstrips, and transparencies; a problem set for student selfevaluation; suggestions for advanced study; and references. For other documents in this series, see SE 015 193, SE 015 194, SE 015 196, and SE 015 197.

(DT) 1733

Diliberto, S. P. And Others

Pilot Study for a New Elementary and Junior High School Mathematics Program: Number Activities for the Kindergarten.

Jalifornia Univ., Berkeley.

Spons Agency—National Center for Educational Research and Development (DHEW OE). Washington, D.C.
Bureau, No.—BR-8-1-042
Pub Date—Jun 70
Grant—OEG 9.2.2010.0000000

Grant -OEG-9-8-081042-0114(010) Vote-20r

EDRS Price - MF01/PC01 Plus Postage.
Descriptors—\*Class Activities, Disadvantaged Youth. \*Educational Games. \*Elementary School Mathematics, Experiential Learning, Instruction,
\*Instructional Materials, \*Kindergarten, \*Numoncepts

ober activities for use in kinderg, rten were developed in an attempt to reduce the deficit in numerical extraction shown by culturally disadvantaged children upon citry into the first grade. Twelve activities are described with teaching suggestions included. The activities did not undergo formal evaluation. Recommendations are made that the materials be formally evaluated, that some of the activities be performed in pre-school programs, and that certain number-learning equipment be manufactured. (Author/DT)

ED 067 292 Double-S Number Theory, Mathematics: 5211.09 Dade County Public Schools, Miami, Fla

Pub Date - 71 Note-20p; An Authorized Course of Instruction

for the Quinmester Program EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Behavioral Objectives, "Curnoulum, Instruction, Mathematics Education, "Objectives, "Respectful Mathematics, "Secondary School

Mathematics, "Teaching Guides, Tests
Identifiers—"Quinmester Program

This is the second of fou guidebooks on developing computational skills using the "stretcher and abrinker" approach developed by UICSM. Approximation, inverses, equations, factoring, and rearrangement are covered. Overall goals for the course, performance objectives, teaching suggestions, and a suggested time schedule are included. Sixteen references for enrichment and practice activities are listed. For other booklets in this set, see SE 014 883 and SE 014 484 (DT)

1735 ED 067 285

Koven, Marcia C P Structures 1, Mathematics: 5210.21. Dade County Public Schools, Miami, Fla.

Pub Date - 71

Note = 16p.; An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Behavioral Objectives, \*Curriculum, Instruction, Mathematics Education, \*Number Concepts \*Objectives, \*Secondary School Mathematics, \*Teaching Guides Identifiers \*Quinmester Program

This is the first of eight guidebooks for a course designed for the junior high student proparing for algebra. The booklet includes place value, expanded numerals, exponents, and elementary set theory General goals and performance objectives, a co-sign outline, and sample posttest items are given (D7)

1736 FD 049 035 Experiences in Mathematical Discovery, Unit 9,

Positive and Negative Number. National Council of Teachers of Mathematics, Inc.,

Washington, D.C. Pub Date

Available from National Council of Teachers of Mathematics, NEA Publications, (201) ofth St., N.W., Washington, D.C. 20036 (5) 000 EDR3 Price-MF01 Plus Postage. Not Availa-

ble from EDRS.

9, "Instructional Materials, "Integers, Modern Mathematics, "Number Concepts, Resource Materials, "Secondary School Mathematics

This is the ninth in a series of ten self-contained units designed for use by students in ninth grade general mathematics classes. This unit is divided into six sections dealing with different concepts involving positive and negative numbers. Some concepts presented include positive and negative integers, addition and subtraction, multiplication, absolute value, and rational numbers. Though the topics are standard they are dealt with in non-traditional methods emphasizing discovery learning. Many exercises, diagrams, and topics for discussion are included. (CT)

1737 ED'048 157 Don't Spare the Rods. A Supplementary Math-

ematics Program for Kinderga ans. University City School District, No. Spons Agency—Offic of Education (DHEW), Washington, D.C. Bureau of Research Bureau No.—BR.6-1328

Contract -- OEC-3-7-061328-0322

EDRS Price - MF01/PC02 Plus Postage.

Descriptors—\*Curriculum Guides, \*Kindergarten,
\*Mathematics Curriculum

Identifiers—"Cuisenaire Materials
GRADES OR AGES: Kindergarten SUBJECT
MATTER: Using Cuis, after rods, ORGANIZATION AND PHYSICAL APPEARANCE: The guide contains a short introductory section followed by a sequential series of 40 lessons. Diagrams are interspersed diroughout the text. The guide is mimeographed and spiral bound with a soft cover. OBJECTIVES AND ACTIVITIES: The introductory section describes the objectives of using Cuisenaire rods. Each lesson contains a detailed sequence of activities with the rods designed to teach children number concepts and operations. INSTRUC-TIONAL MATERIALS: A list of Cuisenaire rods kits available and prices is presented in the introductory section. A set of transparencies and a set of self-checking cards which can be used with the lessons are available from the Prekindergarten-Kindergarten Research Center. However, the lessons can be taught without the transparencies and ear STUDENT ASSESSMENT: None, OPTIONS, No. alternative activities are suggested. It is necessary to follow the lessons in section in but timing is left to the teacher. (RT)

1738 Ogle, John W. Meek, Cleo M. Mathematics Goals and Activitie K-6. Part Is nets

and Numbers. North Carolina State Dept. of Public Instruction,

Raleigh, Div. of Mathematics, Pub Date-70

Descriptors— \*Curriculum Guides, Elementary School Curriculum, \*Elementary School Mathematics, \*Mathematics Curriculum, \*Numbers, \*Set Theory
GRADES OR AGES. K-6. SUBJECT MAT-

TER: Mathematics; sets and numbers. ORGANI-ZATION AND PHYSICAL APPEARANCE: The uide is divided into two sections sets and numbers Within each section the content is grouped into six

levels in order of mareasing difficulty and a co-escontains from 3 to 15, one opts 50, recrosed to a misand illustrations as included the guide is clisc. printed with a soft cover. OBIECTIVES AND AC-TIVITIES. For each concept presente of there is a brief statement of content and one or more behavioral objectives. Suggested activities are then alred for that concept. Activitie - considered to be of more than ordinary difficulty are marked with an aderics. IN STRUCTION AL M. (1) FRIMS. Materials needed for an activity are mentioned in the activity description. STUDEN J. ASSI SSMEN I. Madein, assessment is carried out through completion of the behavioral objectives listed with each concept. OP-FIONS. The guide is suggestive only. No meeting, is made of timing or means of incorporating the concepts described into the total concepts described into the total concepts described into the total concepts.

1739 FD 033 848

Hatch, Mary Jacqueline

[Experimental Course in Elementary Number The ory, Cambridge Conference on School Mathematics Feasibility Study No. 35.1

Cambridge Conference on School Mathematics, Newton, Mass

Pub Date [Note 173p [69]

EDRS Price MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Addition, Arithmetic, Division, \*Fie menta school Mathematics, \*Instruction, \*Instructional Materials, Multiplication, \*Number Concepts, Subtraction Identifiers Cambridge Conference on School

Mathematics MA

In the winter of 1965, an experimental course in Elementary Number Theory was presented to a 6th grade class in the Hosmer School, Watertown, Massachusetts. Prior to the introduction of the present material, students had been exposed in class to such topics from the University of Illinois Arithmetic Project as lattices, number lines, frame equations, and linear affine transformations. The present materials are concerned with such mathematical concepts as (1) fundamental operations involving integers, (2) division of integers with it included remainders, factorization, and the Sieve of Eratos thenes, and (3) number systems in bases and and 12. Teacher and student materials that some and Cook mooks are included. (Not available in hardcopy due to marginal legibility of original document J (RP)

1740 ED 033 848

Lemon, Earle

Inequalities and Real Numbers is a Basis for School Mathematics, Cambridge Conference on School Mathematics Feasibility Study No. 38. Cambridge Conference on School Mathematics,

Newton, Mass. Pub Date [69]

Note - 86p.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Arithmetic, \*Elementary School Mathematics, Grade 1, Grade 2, \*Instruction, \*Instructional Materials, Mathematical Concepts, Resource Materials

identifiers Cambridge Conference in School

Mathematics MA

These materials were developed as a practical response to some of the recor - indutions of the 1963 Cambridge Conference on section Mathematics (CCSM). Experimental sessions are stosenhed in detail in this report. In the Estableok Elementary School, Lexington, Massach isetts, first grade chil-dren (1964-65 Academic Year) concernated on material related to the real number o neept. In cluded are descriptions of teacher and student pertivities. The teacher used several wooden dowels of varying length in order to involve students in discussions of the symmetric and transitive properties of inequality. In addition, the more able second grade students were also exposed to concepts and definitions for inequality, addition and subtraction, and applications to problems. The inequalities unit was also used with a pre-first grade class at Morse Elementary School in Cambridge, Massachmetts X description of this project is provided. [Not as a asble in hardcopy due to morginal legibility of original document.] (RP)

1741

ED 033 027

Fitzgeruld, B. Inequality Lessons at Adams School, Lexington; Cambridge Conference on School Mathematics Feasibility Study No. 42.

Cambridge Conference on School Mathematics, Newton, Mass

Pub Date -- [69]

Note: 69p. EDRS Price - MF01 Plus Fostage, PC Not Available from EDRS.

Descriptors -- Arithmetic, Curriculum Development, \*Elementary School Mathematics, Grade 1. \*Instruction, Mathematical Concepts

Identifiers - Adams School M.A. Lexington, Massa-

These materials were written with the aim of reflecting the thinking of The Cambridge Conference on School Mathematics (CCSM) regarding the goals and objectives for school mathematics. Presented are plans for teaching 15 inequality tessons for above average first pade students. The ascovery applies his unitzed by the teacher in or an involve students in the classroom discussions, ien wooden sticks of varying lengths and thicknesses were available for these inequality lessons and they vere used by both teachers and students in experimental situations. Activities and comments by the teacher and the students are provided for each iesson. [Not available in hard copy due to marginal legibility of original assument? (RP)

1742

ED 022 953

Rahmlow, Harold F. And Others Occupational Mathematics; Concepts of Number Bases. Report No. 16-U. Final Report.

Washington State Coordinating Council for Occu-pational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education

Univ. Pullman. Dept. of Education.

Spons Agency—Office of Education (DHEW),
Washington, D.C.

Bureau No.—BR-7-003;
Grant—OEG-4-7-07003;-1626

-- 129p.

Descriptors— \*Arithmetic, \*Numbers, \*Number Systems, \*Programmed Instructional Materials, \*Textbooks \*Vocational Religious Programmed Programme Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part or a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) change from exponential form to expanded form and vice versa. (2) write a number in the base 10 syste ... in expanded exponential form, (3) write a number in the base two system in expanded exponential form, and (4) co-cert numbers from base two and base five to base .0. The material is to be used by individual students under teacher supervision. I wenty-six other programed texts and an introduc ory volume are available as VT 006 882-VT 006 903 and VT 006 975 (EM)

1743 ED 022 951

Rahmlow, Harold F. And Others Occupational Mathematics; Scientific Notation, Report No. 16-S, Booklet II. Final Report.

Washington State Coordinating Council for Figure pational Education, Compine Washin, State Univ., Pullman, Depriof Education, Syons Agency -Office of Education (CHEW), Washington, D.C. Burezi No. - BR-T-0031
Pub Date: Jun 68

(\*cant OEG-4-7-070031-1626

Descriptors "Arithmetic "Number Concepts, "Programed Instructional Materials, "Symbols (Mathematics), \*\*-xtbooks, \*Vocational Educa-

This programed nematics textbook is for student use in vocational education courses. It was developed as part of a programed series overing 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequentia, content structure was also based on these mathematics competencies. After completion of this program the student should know that a number in exponent n means that X is multiplied

by itself is times and be able to perform addition subtraction, multiplication, and division, with minibers containing exponents, convert any number into standard scientific notation, convert a number from standard notation into standard (lecimal notation) and perform addition, subtraction, my plication, and division using scientific notation. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975 (EM)

Rahmiow, Haroid F. And Other,

Occupational Mathematics; Scientific Notation. Report No. 16-S. Final Report.

Washington State Coordinating Council for Occupational Education, O'ympia, Washington State Univ., Pullman, Dept of Education

Spons Agency Office of Education (DHFW). Washington, D.C.

Bureau No. BR-7-0031 Pub Dute-Jul 68

Grant-- OEG-4-7-070031-1626

N c 123p.

EDRS Price - MF01/PC05 Plus Postage.

Descriptors— \*Arithmetic, \*Number Concepts, \*Programed Instructional Materials, \*Symbols (Mathematics), \*Textbooks, \*Vocational Education

This programed mathematics textbook (Volume 1) is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that a number X having an exponent n means that X is multiplied by itself n times and be able to perform addition, subtraction, multiplication, and division with numbers containing exponents, convert any number into standard scientific notation, convert a number from standard notation into standard decimal notation, and perform addition, subtraction, multiplication, and division using scientific notation. The material is to be use by individual students under teacher supervise it. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

ED 022 949

Ranmlow, Harold F. And Other

Occupational Mathematics; Reciprocals, Report No. 16-R. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia . V ashingto - State Univ., Pillman Dept of Education

Spons A sucy-Office of Education (DHEW).

Washing, n. D.C. au No.-- BP 7-0031

Date -- Jun 68

Grunt OEG-4-7-0/0031-1626

Note -- 110p.

EDRS Price - MF01 PC05 Plus Postage.

Descriptors . \*Arithmetic, \*Fractions, Fundamental Concepts, \*Programed Instructional Materials, \*Reciprocals (Mathematics), \*Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering ! mathematical competencies which were identified by university researchers through task analysis of several occupational Courters. The development of a sequential content structure was also based on these mathematics competencie. After completion of this program the student should be able to write the reciprocal of an integer or a fraction, add the recipintegers; and solve the nation 1+1 R2+1 Rn for Rt. The material is rocais. to be used by individe: students under teacher supervision. Twenty-six or programed texts and are introductory volume are available as introductory volume are available (FM) 882-VT 006 909, and VT 006 975 (FM) an introductory volume are available as VT 006

1746

Rahmlow, Harold I. and Others Occupationer Mathematics; Commutative Law

Report No. 16-Q. Final Report. Washingto State Coordinating Coan, a for Occupational Education, Olympia Washington

pational Education, Olympia: Washington: Univ. Pullman. Dept of Education Spons Agency. Office of Education (DH) Washington, D.C. Bureau No. BR. (2003). Pub Date. Jun 68. Grant. OEG-4. (2007). (2008). Note. (23p. 1200). Dept. Dec. 2007. (2008). (2008). Dec. 2007. (2008)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors \*Arithmetic, \*Fundamenta Con-cepts, \*Programed Instructional Materies \*Textbooks, "Vocational Education

This programed mathematics textbook is for stordent use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was its. based on these mathematics competencies. Also impletion of this program the student should be used to correctly ise the commutative law addition and multiplicaon and should know that it does not hold to subaction and division. The material is to be used by dividual students under teacher supervision enty-six other programed texts and an introducfory volume are available as VT 006 882-VT 006 909, and VT 006 975, (FM)

ED 022 930

Rahmlow, Harold F., 4nd Others Occupational Mathematics; Representing Numbers by Letters. Report No. 16-B. Final Report. Washington State Coordinating Council for Occuwashington State Coordinating Council for Occupational Education Dynnia, Washington State Univ. Pullman Dept of Education (DHEW), Washington, D.C. Bureau No. BR-7-0031. Pub Date. Jun 68. Grant. OEG-4-7-070031-1626. Note. Sep. FORS. Price. MEM. PC03 Plus Bureaus.

Note \$2p EDRS Price - MF01 PC03 Plus Postage. Descriptors \*Antibinetic, \*Fundamental Con-cepts, \*Mathematical Concepts, \*Programed In-structional Materials, \*Textbooks, \*Vocational Education

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task a division of several eccupational. In the elopidation of sequential contents and are a miso based these mathematics compensates for compensate defining the compensate of the elopidation of the elopidat his program the stownt should know that a letter in represent a number and that algebraic and arms menic rules of operations apply to letters and ibers. He should be able to make correct num, substitutions for general lines a cosmon and construct general formulas that represent simple rela-

Throughps is material is to be used by individual scients under teacher supervision. Twenty-six other programed texts and an introductory volume are at leas VT 006 882-VT 006 809, and VT 006 815 (EM).

1748 ED 022 929 Rahmlow, Harold F. And Others

Occupational Mathematics; Symbols Report No. 16-A. Final Report.

Washington State Coordin Council for Occus pational Educate ( . W. ungton State

rational Educate ( ) ..., Woungton State ( ) into ( ) Pollman ( ) ..., rich ( ) ... Spons Agency Orthodor Folcation (DHEW), Wissington, D.C. Buren: No. BR(T-003) Published Jun 68.

Grant OEG-47- (00)31/1625.

Note 95p.

Note \*3p

EDRS Price - MF61 PC64 i i i i i stage.

Descript ins \*Arithmetic, Division \*i undamental Concepts Multiplication, \*Proc inf Instruction di Majorials, \*Symbols (Majorials, \*Symbols (Majorials, \*Text-

ooks, \* Seational Education

This programed mathematics textbook is for stucent use in vocat mal education courses. It was developed as par a programed series levering 21 mathematical pete, des which were identified by university carchers through task analysis of several occup. . onal clusters. The development of a



segmential contest sink throw malso based on these mathematics competencies. After completion of this program the student should be able to correctly this progen to the student should be able to correctly use the out-off signs symbols representing discison such as a board symbols representing much pleation as a sobrab habitable, and rather the material so to be used by individual substitution of rather supervisors in fluents such energy medicals and an introductor consumer are a conditions VI to no symbol substitution of VI to the system of the substitution of VI to the system of VI to the

1-10 - 21 730

Fig. Jac 1 Modula Seven. Pub Date Nug 67 Note 16p

EDRS Price - MF01 P. /1 Plus Postage.

Descriptors Addition Arithmetic, Curric, in, \*Curric, in Descriptor, \*Flementary School Mathematics, Instructional Materia of low Ability Students, Mathematics, Multiplication, \*Secondaty School Mainematics, Subi-sction Identifiers. Elementary and Secondary Education

Not Title III

Act. Eitle III.

This modifier, one of a series, has been developed 1.1. To project. A Program for Mathematically Underdeveloped Pupils. A project team, including inscribed teachers is being used to write and developing more materials. This program. The materials developing in this position had addition, with received in this position had. To addition, with received days in the work (12) congruence and equivalence classes and obscione has proporties. It was not numbers for the indicated operations in modifice. numbers for the indicated operations in modulo

175 FIN 021 729 Frie Jack

Numeration Systems, Past and Presen. Pub Date Aug 6"

EDRS Price - MF01-PC02 Plus Postage.

EDRS Price - MF01 PC02 Plus Postage.
Descriptors Addition, Arithmetic, Curriculum, \*Curriculum Development, \*Elementary School Mathematics, instructional Mater's Low Ability Students, Mathematics, Multi-Lation, \*Secondary School Mathematics, figure Lation, \*Secondary School Mathematics, instruction As Title III.

This possiblet, one of a series, has been developed to the project. A Program for Mathematically Underdeveloped Pupils. A project team, including inseries leachers, is being used to write and develop the mater as for this program. The materials developed in this pooklet include (1) systems of numeral loped in this hooklet include (1) systems of numera from from an historical point of view. 20 a problem of application in a different number base, and (3) addition and multiplication in base two and five

ED 02: 727 Folev, Jack L.

Integers, Addition and Subtraction.

Pub Date Nep 6'

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Addition Arithmetic. Elementary School Mathemat Low Ability Students, Mathematics, Schraction and Security Education (1988). Identifiers. Elementar, and Secondary his pation Act Title III

Act Title III.

This booklet, one of a series, has been developed of the project, A project of Mathematically Under tevelope (Purils) A project of immediating inservice teachers, is being used to write and develop the materials of this program. The materials developed in this prooklet include (1) the addition and subtraction of whole numbers on the number line, 22 the addition and subtraction of integers on the number of notion and 30 the idea of irrefuselity. Accompanying the second six will be a fine unity of strateg Booklets which will include a description of teachers, hinduces, methods, suggested its sences, academic games, and suggested visual.

1752 21 726 Soles Jack 1

Number Sentences, Equations and Inequalities.

Note 18p EDRS Price - MF0F PC02 Plus Postage. Descriptors "Algebra, "Arithmetic, Currequium, "Currequium Development, Elementary School Marhematics, Instructional Materials, "Mathematics "Secondary School Mathematics Her

This bookier one of a series of a second five a per-tor the project. A Program for Mother are a full-fordiscatoped Proposition for team and Latinovia service teachers, since a section with earlier coop-formaticinals for this program. The that chair dece-Topical in this booklet include of a minuser express States (2) synthols and deas (3) opening in our side of a side of the angle for the man of the word has beginning of the synthols of the angle of the an terms (RP)

a D 626 894 FOLES FROM NUMBER THEORY

Pub Date All On? Note: 457

EDRS Price - MF01 PC02 Plus Postaki Descriptors - \*Arithmetic Division - \*Free matrix School Mathematics Extraculting in Accordes \*Instructional Materials, Low About Stylens, \*Mathematics, Multiplication, Set Theory

Identifiers Elementary Secondary Education Act

Title III THIS BOOKLET ONL OF A SEPE S THIS BOOKLET ONLOGE A SEFE S. HAS THE DEVELOPED FOR THE PROJECT A OGRAM FOR MATHEMA S. MITY A DERDEVELOPED THIS A PROJECT TEAM INCLUDINGLE RAVICE FACILIES IS BEING USED TO TRIB AND DIVILOUTH MATERIALS FOR THIS PROGRATING MATERIALS MARKED AND THE PROGRAM THE MATERIAL STOR TO IN PROGRAM THE MATERIALS DEVELOP DON'THIS BOOK LET INCULD HELEVANT OF ACCOMPANION OF THE STORY OF THE

ED 016 614 ROBBINS, MORTON - 14N SPETBROICK. JAMES

SETS, SENTENCES, AND SYSTEMS, HAND-BOOK FOR JUNIOR HIGH SCHOOL MATHEMATICS WORKSHOPS.

Illimois State Office of the Superintendent of Public Instruction, Springfield

Solie 6 fr EDRS Price - MF01 PC03 Plus Postage.
Descriptors \*Inservace Teacher Education Pathematics, Mathematics Materials, \*Secondary School Maintenance, Feacher Education

\*\*School Majnematics, Feacher Edicarion\*\*
\*\*School Majnematics, Feacher Edicarion\*\*
\*\*Trisher Worz - ps
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BRI (S. CARL AND OTHERN QUIDS AND TIPS ON CUISENAIRE. Cursmaire Co. of America, New York, No. Puh Date JUN63 Not - 48P

Descriptors \*Florientary Solication, \*Fundamentary Conserve, \*Mathematical Conserve, Mathematical Conserve, Mathem ematical In richment, Mathematics Currical in-\*Mathematics Materials, NoveScott Concepts, Teaching Guides

Identifiers CUISENAIRE MATERIALS, Mic

SOURTH SOURTH CONTROL OF A TEACHING GUIDE THIS DOC MENT IS A TEACHING GUIDE TO AND IN THE USE OF CUSINAIRE MATERIALS IS CRESENT FUNDAMENTAL MATHEMATICAL CONCEPTS TO FUMEN.

LARY SCHOOL CHILDRAN CONCEPTS OF AND EXPREISES IN COLVING NUMBER 1800 ADDING, DIVIDING STRIRE (1804 ADDIRIO), DIVIDING STRIRE (1804 ADDIRION, CONCEPTS OF FRACTONS DISTRIBUTED PROPERTIES OF FRACTONS RECEIVED PROPERTIES OF STRANGLAR STANGLAR NUMBERS AND PERMETATIONS ARE DISTRIBUTED AND REPORTED AND REPORTED AND REPORTED AND REPORTED AND ADDITIONAL PROPERTIES OF A STANGLAR OF STANGLAR AND A DISTRIBUTED AND A ARE INCITIDED HIS



# **OBJECTIVES**

1800 Flax, Rossbel And Others ED 178-312

ED 178 302

Guidelines for Teaching Mathematics K-12. Kansas State Dept. of Education, Topeka. Div of Education Services.

Pub Date -- Jun 79

Note-91p.; Best copy available Pub Type-Guides - Classroom - Teacher (052)

Descriptors—\*Directories, \*Elementary School Mathematics, Elementary Secondary Education, Guidelines, \*Mathematics Curriculum, \*Resource Teachers, \*Secondary School Mathematics ics, \*State Curneblum Guides, State Departments of Education

Identifiers---\*Kansas

This guide is intended to provide a basic outline for developing local mathematics programs. It was developed to give Kansas mathematics teachers from grades K-12 minimal sequential experience in implementing the skills, values, an I concepts of the mathematics program. The guide contains objectives, a checklist of topics appropriate for each grade level, and a human resources guide which provides the nones of individuals willing to serve as technical assistants to local school satricts. (MK)

1801 Williamson Paul !! Comp.

Mathematics Pougram.

Smith Coll., Northampton, Mass Pub Date-79

Note -72p.; Page 16 removed due to copyright restrictions; Figures contain occasional marginal leg-

ibility
Pub Type— Guides - General (050)
EDRS Price - MF01/PC03 Plus Postage.
Descriptors—Curriculum Development, \*Curriculum Guides, \*Early Childhood Education, Elementary Education, \*Elementary School Mathematics, \*Mathematics Education, Preschool Education

school Education
Identifiers—\*Smith College Campus School MA

This program description contains goals and objectives for five methematics curriculum levels: three- and four-ye ir-olds, five-year-olds, six- and seven-year-olds, eight- and nine-year-olds, and tenand eleven-year-olds. A mathematics program overview for Smith College Campus School and a discussion of considerations for mathematics curriculum decision making are also presented. (MK)

ED 164 261 Specialized Mathematics Courses, Secondary Level: Learning Objectives, Scope and Sequence. Lehigh County Community Coll. Schnecksville, Pa.; Northern Lehigh School District, Slatington,

Pub Date--[78]

Note--63p., For related document, see SE 025 256;

Note--6-ip., For related document, see SE 025-256; Contains occasional light and broken type. Puh Type-- Guides - General (150). EDRS Price - MF01/PC03 Plus Postage. Descriptions—"Achievement. Algebra. Analytic Geometry, "Behavioral Objectives, "Curriculum, Curnculum Guides, Geometry, "Instruction, Mathematical Applications, "Program Descriptions, Secondary Education, "Secondary School Mathematics. Trigonometry." Mathematics, Trigonometry

In this document, detailed objectives for the following courses are listed: Algebra I, Algebra II, Geometry, Trigonometry, Analytic Geometry, Advanced Mathematics, Personal Business Mathematics, and Business Mathematics. Each objective is keyed to ac expected level of achievement; awareness, knowledge, application, mastery, reinforcement, and enrichment. Also contained herein is an overview of the basic mathematics program at Northern Lehig : School District. (MP)

ED 164 260 Basic Mathematics Programs, K-12: Learning Ob-

jectives, Scope and Sequence, enigh nty Community Coll., Schnecksville, Pai, Nomern Lehigh School District, Slatington, Lehigh

Pub Date

Note--102p. For related document, see SE 025-257, Contains occasional light broken type Pub Type -- Guides - General (0)

EDRS Price • MF01. PC05 Plus Postage. Descriptors—\*Achievement, \*Behavioral Objectives, "Curriculum, Curriculum Guides, Elementary Secondary Education, Fractions, Geometry, "Instruction, Mathematical Applications, "Mathematical Applications," hes Education, Measurement, Number Concepts, \*Program Descriptions Identifiers - \*Number Operations

In this document, detailed the tieses for each grade level are listed according. The following categories for grades K-9, numeration, basic operations, fractions, money and more, and measurement and goometry, for grades 10-12, numeration, basic expected level of to an expected level of achievement: awareness, knowledge, application, mastery, reinforcement, and enrichment. An over-view of the basic mathematics program at Northern Lehigh School District is also presented. (MP)

ED 134 429 K-12 Methematics Program Fuseline, Fie'd Test Copy. Appendix A.

Dallas Independent School District, Tex

Pub Date—[75] Note—221p.; For related documents, see SE 02: 67a-681; Contains occasional light and broken

Pub Type - Gun - General (05th)

Descriptors—Curriculum, \*Curriculum - Guides,

\*Elementary School Mathematics, Elementary
Secondary Education, Mathematics Education,
Objectives, \*Secondary hoof Mathematics

\*\*Lettification\*\*

\*Control Policy Control

\*\*Technology\*\*

\*\*T

Identifiers-Dallas Independent School District TX This document discusses the rationale and the program goals for the K-12 mathematics curriculum to the Dallas Independent School District. Minimun mastery objectives expected of all high school graduates are specified. Mastery objectives for each grade level from K through 8 are listed, and class progress charts are included. The evaluation form for ninth-grade placement, a career planning sheet, a course relationship guide, suggested four-year mathematics programs for grades 9 through 12, and mastery objectives for grades 9 through 12 are provided. A textbook list and chart showing the K-12 continuum of mastery objectives also are included

1805 ED 125 923 Mathematics K-12, Problem Solving, Utica City School District Articulated Curriculum: Project SEARCH, 1975.

Uties City School District, N.Y.

Spins Agency—Bureau of Elementary and Selondsry Education (DHEW/OE), Washington, D.C.

Note—18p.: For related documents, see SE 021 195-199: Light and broken type throughout Pub Type—Guides—General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors—Behavioral Objectives, Curriculum,

\*Curriculum Guides, Elementary School M ematics, "Elementary Secondary Education, Mathematics Education, "Objectives, Problem Solving, "Secondary School Mathematics Licentifies - Elementary Secondary Education Act

Title III
This document is one of six which set forth the mail mattes components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District. Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. This volume addresses techniques of solving problems thro and at the curriculum. (SD)

ED 105 900 Mathematics K-12, Operations, Utica City School

District Articulated Curriculum: Project SEARCH, 1975.
Utica City School District, N.Y.
Spons Agency - Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date-75

Note-30p.; For related documents, sec SE 021 195-200; For related documents, see SE 195-200; Light and broken type throughout Pub Type— Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors-- Algebra, \*Basic Skills, Behavioral Objectives, Curriculum, \*Curriculum Guides, \*Fiementary School Mathematics, Elementary Secondary Education, Mathematics Education, Number Systems, \*Objectives, \*Secondary Number Systems, School Mathematics

inntifiers -- Elementary Secondary Education Act

This document is seen six so is his contribute mathematics compositions to the Project SEARCH Articulated Corriegies succeloped by the Union (New York) Cox School District Each comme deals with a 5% ad area of mathematics and lists objectives relaced to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. Computer or and properties of operations are addressed in this volume. The objectives posed for the grades K-8 are related to will and understanding of computation with whole numbers, fractions, and decimals. Algebrais adds seed at the upper grade levels (9 through 12) (SD)

ED 125 921 Mathematics K-12, Number and Numeration, Utica City School District Articulated Curriculum: Project SEARCH, 1975.

Utica City School District, N Y

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date 75

Note 19ph For related documents, see Sh 021 195-200; Light and broken type throughout Pub "spe Guides - General (050)

EDRS Price - MF01 Plus Posta je. PC Not Availuble from EDRS.

Descriptors Behavioral Objectives, Curricomm, \*Curriculum Guides, \*Elementary School Matinematics, Elementary Secondary Education, Mathematics Education, \*Number Concepts, Number Systems, \*Objectives, \*Secondary Schoo Mathematics

Identifiers Elementary Secondary Education Act Title III.

This document is one of six which set forth the mathematics components of the Proje SEARCH Articulated Curriculum developed to the Coen-(New York) City School District Fach volume deals with a broad area of mathematics and lists objectives related to that area for all crades from K through 12. Each objective listed is a scribed first in general terms and then in terms of specific skills which students should exhibit. This volume concerns numbers and systems of numeration. The topics range from counting and recognition of numerals at the early levels to use of non-feering systems, permutations and combinations, and it respectation of percents at upper fevels. (SD):

ED 105,920 Mathematics K-12, Measurement, Utica City School District signlated Curriculum: Project SEARCH, 1975.

Utica City School District, N 3

Spons Agency Bureau of Elemo ary and Secondary Education (DHEW Oh), Washington, D.C.

Note Top., For related documents, see SF 022 195-200. Light and broken type this aghout Pub Type Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descritors Behavioral Objective Curriculum.

\*Curriculum Goldes, \*Elementar Libror Mathematics Elementary Secondary Education.

Mathematics Education (\*Measurement, \*Objective Curriculum (\*Objective Curricu tives, Securitary Spool Mathematics

Identifiers. Elementary Secondary Ed., 1966, Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curregium in eloped by the Utica (New York) City School District Sich volume deals with a broad area of m aucs and lists bicutives related to that area of all grades from K through 12. Each objective his described first in neral terms and then in terms of specific skills which students should exhibit. This volume covers topics related to measurement. These include money, calendar, time temperature, weight, linear measure, liquid measure, area and volume, error of measurement, and techniques of traphing and interpreting graphs. Both metric and Engl. is systems of measurement are used (SD)

1809 tiD 125 719 Mathematics K-12, Geometry, Utica City School District Articulated Curriculum: SEARCH, 1975. Project

Utica City School District, N Y

Spons Agency Bureau of Elementary and Secondary Education (DHFW OF), Washington DA

Pub Date 75 Note 17p. For related documents, sec Sh 021 195-200. Light and broken type throughout Pub 199e. Guides - General (050)

EDRS Price · MF# Plus Postage, PC Not Available from EDRS.

Descriptors Behavioral Objectives, Curriculum, 
\*Chariculum Guides, Cementary School Mathematics, \*Elementary Secondary aducation, 
Geometric Concepts, \*Geometry, Mathematics Education, \*Objectives, \*Secondary School Mathematics, Trigonometry

logalitiers Elementary Secondary Education Act iners T - III

To docume to one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Linea New Yorks City School District Each volume deals with a broad area of mathematics and lists objectives related to nat area for all grades from K through 17. Fach objective listed is described first in gers an icens, and then in terms of specific skills witch students should achieve This volume concerns geometric is neepts, incorems, and methods, including the mometry and a few topics from the calculus (SD).

ED 125 918 Mathematics E-12, Sets. Unca City School District Articulared Curriculum: Project SEARCH.

Unica City School District, N Y

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Dute 75

Note 16p. For related documents, see SE 021 196-200, Light and broken type throughout Pub Type - Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Behavioral Objectives, Curriculum, \*Curriculum Guides, \*Elementary School Mathematics, Elementary Secondary Education, Machematics Education, \*Objectives, \*Necondary School Mathematics, \*Ser Theory, Symbols (Mathematics)

Identifiers Elementary Secondary Education Act Title III

This document is one of six which set forth the mathematics components of the Project SEARCH Articulated Curriculum developed by the Utica (New York) City School District Each volume deals with a broad area of mathematics and lists objectives related to that area for all grades from K through 12. Each objective listed is described first in general terms and then in terms of specific skills which students should exhibit. The objectives listed in this volume are related to the development of set theoretic language, symbolism, and usage. In addition, high school objectives concerning probability and sets related to the definition of functions are included (ND)

1811 ED 116 969 A Computerized. Comprehensive Achievement Monitoring (CAM) Compatible, Data Bank of Mathematics Objectives for Individualized Adult Basic Education Programs.

Adult Basic Education Programs.
Cinadore Colli, North Bay (Ontario)
Pub Date 175
Note 106p. Marginal Levility
Available from ERIC SNIGAC, The Ohio State
University, 1200 Chambers Road, 3rd Floor,
Columbus, Ohio 43212 (on loan)
Ech Type Guides Genera (050)
Document Not Available from EDRS.
Descriptors "Adult Education, "Basic Skills,
"Behavioral Objectives, Curriculum, Instruction,
"Mathematics Education, "Number Concepts,
Objectives, Postsecondary Education Djectives, Postsecondary Equation laentifiers Canada

This mathematics data bank of generic objectives was developed as the major coment of an em-plementation of Comprehense a Achievement Monitoring in the Individualized and Personalized Adult Basic Education Program of the Canadore College (North Bay, Ontario) Continuing Education Division. The bank contains approximately 900, objectives organized into 88 blocks. The blocks are

further subdivined unto anition idules. The objectives listed range from abouts to count elements in a discrete set to ability to manipulate algebraic expressions and solve work problems a Varbor SDr

ED 111 633 Matte maties Content Authority List K-8.

Permission - State Dept. of Education (Harrish), a Bureau of Corructional Support Services

Pub Date 14 Note 170p

Pub Type Miscelaneous 1999)

EDRS | see - MF01 PC0\* Plus Postage. Descr. | rs | Computer Oriented Programs, \*Cur Pesch, is Computer oriented rangiants, curriculum, "Figureant v School Mathematics Flementary Seasond - Education, "Information Retrieval, Information Services Instruction," Mathematical Concepts, "Mathematics Education tion, Objectives, Secondary School Mathematics Identifiers Pennsylvania

This document is a list of approximately 450 mathematical concepts which are taught in grades K-8. The list is a gamized into eight major topics. (1) number systems (2) numeration and notation, (3) sets, (4) tietry, (5) measurement, (6) number relationships, (7) other topics, and (8) summaries. The Content Authority List is used in conjunction with the Behavioral Objectives Authority List and the Vocabulary Authority List in the Pennsylvania Retrieval of Information for Mathematics Education System (PRIMES). This system of information storage and retrieval is used by local school districts in accision making with respect to curriculum, instruction, and evaluation (SD)

1813 ED -18 975

Program of Studies, Mathematics. Fairfax County Schools, Va Pub Date 3 Sep 74 Note 219p Pub Type

Guides at 1050) EDRS Price - MF01 PC09 Plus Postage.

Descriptors - Course Content, Curriculum \*Curriculum Guides, \*Elementary School Mathematis ics, Elementary Secondary Education Mathematics Education, \*Objectives, \*Program Descriptions, \*Secondary School Mathematics Identifiers Fairfax County Schools VA, Virginia

This mathematics curriculum guide of the Fairtax County (Auginia) public schools provides a description of the total production, as well as detailed statements related to objectives of the elementary, intermediate, and high school program, and discussions of individual courses. For the ementary grades (K-6), learning objectives are organized by strands, with objectives will on for each level within the strand. The levels are all agned to promote contimulty in each student's progression in the program The intermediate program, required of all students. provides a bridge to later courses and exposure to a carrety of mathematical concepts. The high school program includes 17 courses from which the student may select sequences defined in this document. Objectives are defined for each cours -- SD

ED 097 202 Baker Will in E. And Others

Performance Objectives and Criterion References Test Items for Mathematics.

Duval County School Board, Jacksons Je. Fla. Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date. Jun 73

Note: 141p Pub Time: Guides + General (050)

EDRS Price - MF01 PC06 Plus Postage.

Descriptors Algebra, \*Behavioral Objections \*Criterion Referenced Tests, Geometry, \*Goinges, Mathematics Education, Postsecondary Education, \*Secondary School Mathematics, Technical Mathematics, Tests, Two Year College Students fentifiers. Elementary Secondary Education Act Title III

This is a catalog of performance objecriterion measures covering algebra I. geometry, and trigonometry for students planning to take technical mathematics at a junior college Broad rectises, specific objectives, and criterion referenced test items are presented by skill and kn wledge areas within each of the four courses mentioned. An accuracy level of 70 percent on the criterion measures is suggested (LS)

1815

Marson & Remarks t Minimal Performance Objectives for Mathematics Education in Michigan.
Michigan Council of Teachers Motore, etc. 5, 71

choran State Dept. of Landian Charsons. P. S. Date - Soite 123p

EDRS Price - ME01 PC05 Plus a stage

Descriptors: Base, So expensive decreases of the free force of the filling of the free force of the filling of the filling of the filling of the force of the filling of the force of the filling of the ondary School Mathematics "State standards Identifiers Michigan

An explicit and complete live of the Minimal Per-formance Objectives for Mathematics Education . Michigan public schools is a netained in this dock ment. The objectives are organized and somajor topics of Arithmetic, Measureme and try, Mechia and Probability and Statistics (2 year) ples and comments are included. A summary of the rationale for setting these objectives and the memorial by which they were it is ed is also provided offly

1 D 986 560 Mathematics Education: Scudent Terminal Goals, Program Goals, and Behavioral Objectives. Mesa Public Schools, Arry Pub Date [74]

EDRS Price - MF01 PC01 Plus Postage Descriptors Basic Skills, \*Behavioral Objectives \*Carriculum \*Elementary School Mathematics Carnetium Enternentary School Mariner Struction onto High School Studers Condition Measurement, No. 238, Number Systems, \*Objectives, a Solving, Secondary School Mathematics

Behavioral objectives are listed for the primars intermediate and junior high mathematics criculum in the Mesa Public Schools Arizonai Lists of specific objectives are given by symbol recognition, a limber operation ca. Structures, measurement and profice videing skills (JP)

1817 ED 071 740 Rogers, Arnold R., Ed. And Others

Secondary Schools Curriculum Guide, Mathematics, Grades 10-12, Levels 87-112.

Cranston School Dept., R. 1.
Spons, Agency Office of Education (F-W),
Washington, D.C. Projects a Assume Country in Education Pub Date = 72 Note = 148p ; Draft Copy

Note 145p. Draft Copy.
EDRS Price - MF01 PC
Descriptors \*Behaviora
Computers, \*Curricalium, Correction Codes,
Geometry, Objectives Probability, \*Secondary,
School Mathematics

Identifiers. Flementary Secondary Education Acr. Title III, Objectives Bank

Behavioral object ces for geometry, a gebra, computer mathematics, trigonometry unalytic geometry, calculus, and probability for specified for grades to chough 12. General on the second stated for major areas under each topic of a are followed by a scale specified objectives to the second specified objective to the second specified objective to the seco is of specific objectives for the real. This work was prepared under an ESEA Time (b) estract (DT)

1818

Rovers, Arnold R. Ed. And Other

Secondary Schools Curriculum Guide, Mathematics, Grades 7-9, Levels 1-86.

Cranston School Dept. R I Spots Age ex Office - Education (DHFW) Washington, D C Profests to Advance Creatives Education

Pub Date 12 Note 17th Draft Cons EDRS Price - MF01 PC08 Plus Postage.

Descriptors Nigebra, \*Behavora, Objectives \*Correction, Curriculum Guides, Geometri, Correction Guides, Geometri, Corrections Fiducation Number Correct Objectives \*Secondary Served Mathematics of The 15

Elentifiers Tementury Secondary Education Act Title III, Spectives Bank

listed in hehavioral objectives for 86 topics in I sted at menaviarial objectives for 80 top 68 in morbinal. To be, overed in grades seven through mine for 60 topols, general objective is given and its followed by a lost of specific objectives. Areas covered at lade number operations, geometry, number systems, set theory, and algebra. This work is a second of the following following the following following following the following f was prepared under an INFA Title III contract



ODE

ED 077 736 LP.P.E.S. Master Objectives Bank, Mathematics (K-6) Catalog.

Jackson Union School District, Mich.

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Michigan State Dept of Education, Lansing Pub Date [73]

Note 2009

EDRS Price MF01 PC09 Plus Postage.

Descriptors Behavioral Objectives, Catalogs, Codification, "Curriculum, "Elementary Nation Mathematics, Geometric Concepts, Informating Retrieval, Mathematics Education, Measurement, Number Concepts, "Objectives Identifiers - Elementary Secondary Education Act

Title III, Number Operations, Objectives Bank The coding system used to classify items in the Instructional Program Planning and Evaluation System (IPPES) Master Objectives Bank is explained. Objectives for 67 topics in mathematics are organized by grade level for each of the grades from kindergarten through six, and their code numbers are specified (For a listing of objectives by topic, see SE 016 295) This work was prepared und r an ESEA Title III contract (DT)

1820 ED 077 735 I.P.P.E.S. Master Objectives Bank, Mathematics Instructional Topic Catalog.

Jackson Union School District, Mich Spons Agency—Bureau of functionary and Secondary Education (DHEW/OE), Machington, D.C. Michigan State Dept. of Education, Lansing Pub Date - [73] Note---260p.

EDRS Price - MF01/PC11 Plus Postage Descriptors - Behavioral Objectives, Jutalogs, Codification, \*Curriculum, \*Elementary School Mathematics, Geometric Concepts, Information Retrieval, Mathematics Education, Measurement, Number Concepts, \*Objectives

Identifiers—Elementary Secondary Education Act Title III, Number Operations, Objectives Bank

The Joding system used to classify items in the Instructional Program Planning and Evaluation System (IPPES) Master Objectives Bank is explained Sixty-seven topics ir mathematics to be covered in grades kindergarten through six are specified; objectives are listed under these topics along with their code numbers. (For a listing by grade level, see SE 016 296.) This work was prepared under an ESEA Title III contract. (DT)

ED 073 553 :821 Course Goals in Mathematics, Grades X-12. Critique Draft.

Multnoman County Intermediate Education Dis-

Multinoman County Intermediate Education Dis-trict, Portland, Oreg.

Spons Agency National Center for Educational Research and Development (DHEW OE) Washington, D.C. Regional Research Program, Descon Stite Board of Education, Salem Bureau No.---BR-2-J-032 Pub Date---72 Contract OEC-X-72-0026(257) Note 18-bp., To:-County Goal Development Pro-

Note: 184p., Tri-County Goal Development Pro-

Available from Hard copy is not available EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Descriptors: Accountability, Carso Content, \*Course Objectives, \*Curriculum Development, Development, Educational Objectives, \*Mathematics, \*Mathematics Curriculum, \*Mathematics ics Education, Public Schools

This document is one part of a untique series that deals with the development and evaluation of course goals in six subject matter areas for grades K-12. The series provides an initial pool of course-ievel goals that are expected to be of considerable value in assisting educators with goal definition related to curriculum planning and development, instruction, evaluation, and accountability. Goals for the mathematics curriculum are organized ac-cording to a subject matter taxonomy. Number systems goals are divided into goals for whole numbers. integers, rational numbers, real numbers, complex numbers, matrices and determinants, vectors, and algebraic expressions. Goals for numeration, mathematical sentences and their solutions, relations and functions, geometry, measurement, sets, logic, probability not statistics, history of mathematics, and use of computations, devices are also presented use of computations for sets our sets of indexes offer the possibility of retriesing course goals by subject matter amoviledge and process, subject area, and careerston Related 4.943-948, and documents are EA 004 941-2, F ED 061 043 (Author DN)

FD 069 500 Mathematics Objectives, Level 7 [Project SPPFD, System for Program and Popil Evaluation and Development].

New York State Education Dept., Albany, Bureau of School and Cultural Research

Pub Dale 72 Note: 177p.

EDRS Price - MF01 PC08 Plus Postage.

Descriptors Algebra, Arithmetic, \*Behavioral Ob jectoles, \*Curriculum, Elementary School Mathematics, \*Fivaluation, Geometry, Grade-\*Objectives, \*Secondary School Mathemacies

This is the fourth volume of a series produced by the New York State Education Department, Originally developed by four local school districts, the mathematics objectives and sample items included were not intended to be a literal or comprehensive but rather to be used as an aid to teachers in constructing curricula and in making classroom goals clear and precise. The document presents a series of 300 examples, each of which states an objective and gives a sample item. The objectives are classified under one of 12 sections, sets, number, numeral, and numeration systems, -hole numbers, fractions (positive rationals), decimals, integers, ratio, proportion, and percent, measurement, geometry, problem solving, word problems, algebra, and statisties and probability. For other volumes in this series, see ED 064 165, ÉD 064 166, ED 064 167 SE 014 469, and SE 014 548. (DT)

ED 069 484

Zander, Del And Others

A Math Continuum, Part D.

Washington Office of the State Superintendent of Public Instruction, Olympia

Pub Date -Jun 72

Note -- 775p

Descriptors of A hieron PC31 Plus Postage.

Descriptors of A hieron received. Algorithms. Curriculum of Educators. School Mathematics. \*Evaluation, Geography, "Instructional Materials. Measurement, Number Concepts, \*Objectives, Special Education, Testing Evaluation sheets and developmental checklists.

prepared by three special education departments, are provid. I to facilitate continuous measurement of student progress in elementary school mathematics. One hundred forty-three objectives are given. and each is followed by a continuum-oriented set of worksheet-type pages on mathematics skills. The

sets were not intended to be used for seatwork or as a replacement for a school's present program in mathematics but to provide a fast means for evaluatrig each child's progress. No suggestions for diagnosis are included. The objectives cover content in number concepts, all operations with whole numbers, decimals, and fractions; adding and subtracting integers; commutative, associative, and distributive laws, problems in money, time, and units of measurement, and recognition of geometric Jaures, (DT)

ED 069 475

Henderson, George L. And Other

Wisconsin Statewide Assessment Mathematics. An Exemplary Mathematics Program Grades K-8 and a Hierarchy of Student Behavioral Objectives K-8.

Woonsin State Dept of Education, Malison. Note- 380

Descriptors Behavioral Objectives, \*Curriculum, \*Elementary School Mathematics, \*Estaluation, Instruction, \*Mathematics Education, \*Objectives

Overall goals for a model K-8 mathematics program are stated. A hierarchy of over 400 mathematiics content objectives for grades K-8 are listed in a prerequisite and sequential order and also organized in a grid form. Suggestions as to how the objectives can be used and a checklist of objectives upon which Wisconsin's statewide mathematics assessment test items will be based are included. (DT)

140 067 288 Mathematics Objectives, Level 8 Project SPPFD, System for Program and Popil Evaluation and Development).

New York State I docation Dept., Abany Bureau of School and Carnell Research

Pub Date

EDRS Price - MF01 PC07 Plus Postage.

Descriptors - Agebra, A chimatic \*Revasiona Objectives, \* Sericidum, \*Evaluation Commerciale 8, \*vibioctives \*Necondary School Man

This is volume five of a series produced by the New York State Education Department, Origin file developed by four local school districts, the mathematics objectives and sample items are not intended to be official or comprehensive, but to be an aid to teachers in constructing corrocala and in making classroom goals clear and precise. The documen, presents a series of 281 examples, each of which states a objective and gives a sample item. The objectives are classified into 13 sections, sets, number, numeral, and numeration systems, whole marbers, fractions (positive rationals), decimals, integers, real numbers, ratio, proportion, and percent, measurement, geometry, problem solvingword problems, algebra, and statistics and probability For related documents in this series, see ED 064 165, FD 064 166, ED 064 167, and NF 014 469 (DT)

ED 067 237 1826 Mathematics Objectives, Level 6 [Project SPPED, System for Program and Pupil Evaluation and Development].

New York State Education Dept., Albany, Bureau of School and Colon of Research

Pub Date

Pub Date
Note 190p
EDR: "mee - MF01 PC08 Plus Postage.
Descr. Algebra Arithmetic, "Behaviora" Objective, "Curriculum: "Elementary School Mathematics" Geometry, Grade 6. ematics, \*Evaluation, Geometry, Grade 6, \*Objectives

This is the third volume of a series produced by the New York State Education Department Originally developed by four local school districts, the mathematics objectives and sample items included were not intended to be official or comprehensive but rather to be used as an aid to teachers in constructing curricula and in making classroom zouls clear and prec - The document presents a scientific 337 examples, cach of which states an objective and gives a sample item. The objectives are classified under one of 11 sections sets, number, numeral, and numeration systems, whole numbers, fractions (positive rationals), decimals, ratio, proportion, and per cent, measurement, geometry, problem solvingword problems, aigebra, and statistics and probability. For related volumes, sec. FD 064-165, FD 064-165, and 5E 014-548. (DT)

ED 067 077 1827

Pardy, Leslie, Comp.

Instructional Objectives for a Junior College Course in Intermediate Algebra.

Pub Date

Note 429 EDRS Price - MF01 PC02 Plus Postage. Descriptors: "Algebra: "Benissonal Objectives. Course Objectives, "Mathematics, "Mathematics Instruction, "Two Year Colleges

These instructional objectives, written by Harvey Reynolds, have been selected from materials use to the Golden West College (California). These objects is a are offered sing. This samples that may be used where they correspond to the skills, abilities, and attitudes instruct ... want their students to acquire titulides (PS) (del aminimo) scalamis or acquire. These objectives (i.g., dso serve as models of assisting anythractors to (P), sate their courses into specific meas. See terms for other objectives in related courses see ED 0 (p.883) (College Algebra), and ED 049-751 (Intermediate Vicibia) (MB).

ED 066 497

orman, Marcus - And Otters High School Mathematics: Behavioral Objectives

and Test Items.
Institute for Educational Pisearch, Downers
Cross, III
Pub Date 77

Pub Date

Note: \$19p. Available from Institute for dicatomal ex-search, 14th West Mapie Avenue Downers Orone, Harross 8 of \$ (\$100m)



EDRS Price - MF05 PC33 Plus Postage.
Descriptors - \*Behavioral Objectives, Corriculum Development, "High Schools, "Individualized Instruction, "Item Banks, "Mathematics, Programs Evaluation

Identifiers Elementary Secondary Education Act Title III, \*Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers to sections of four subject areas in each of four grade levels. The tour areas are Language Arts, Math, Social Studies, and Science. The four grade levels are Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for high school mathematics (CK)

ED 000 490

Lieberman, Marcus And Others

Junior High Mathematics: Behavioral Objectives and Test Items.

institute for Educational Research, Downers Grove III Pub Date [72]

Note 2300

Available from Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, mois 60515 (\$7.00)

EDRS Price - MF01 PC19 Plus Postage.

Descriptor \*Behavioral Objectives, Curriculum Development, \*Individualized Instruction, \*Item Banks, \*Junior High Schools, \*Mathematics, Program Evaluation

Identifiers - Elementary Secondary Education Act Title III, \*Evaluation for Individualized Instruction Project

The Objective-Item Bank presented courts 16 sections of four subject areas in each of four grade levels. The four areas are. Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curneutum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for Junior High mathematics, (CK)

ED 066 495

Lieberman, Marcus And Otners

Intermediate Mathematics: Benavioral Objectives and Test Items.

Institute for Educational Research, Downer-Grove, III

Pub Date =72 Note 587p

Available from Institute for Educational Research, 1400 West Maple Avenue, Downers Grove, Illinois 60515 (\$13.00)

Descriptors \*Behavioral Objectives, Curriculum Development, \*Elementary Education, \*Individualized Instruction, \*Item Banks, \*Mathematics, Program Evaluation

Identifiers - Elementary Secondary Education Act Title III. \*E-aluation for Individualized Instrution Project

The Objective Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are Language Arts, Math, Social Studies, and Science. The four grade levels are 1 mary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curneulum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition is provides the means to determine the extent to which the objectives are accomplished. This discument presents the Objective Item Bank for intermed ate mathematics (CK)

1831

1.13 Cop 494

Inthorman, Maria Ana Offices

Primary Mathematics, Behavioral Objectives and Test Items

Institute for I discational Research Down's Mitters of Green, III of Page 13 Pisk Date

Since

Available from Justitute for Educational Re-search, (400 West Magic Avenue Downess Grove, Blinois 50515 (54 or).

EDRS Price - MF01 PC07 Plus Postage.

Descriptors \*Behavioral Objectives, Correlation Development, \*In \* vidualized Institution \*Item Banks, \*Mathematics, \*Primary Education, Program Evaluation

Identifiers - Fementary Secondary Education 3.5 Title III, \*Evaluation for Individualized Instruction Project

The Objective-Item Bank presented covers 15 sections of four subject areas in each of four grade levels. The fore areas are Language Arts, Main. Social Studies, and Science. The four grade levels are Primary, intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This locument presents the Objective Item Bank for primary matnematics (CK)

1832 ED 064 167 Mathematics Objectives, Level 5 [Project SPPED, System for Program and Pupil Evaluation and Development).

New York State Education Dept. Albany Bureau of School and Cultural Research ub Date 72

Pub Date Note - 1296

EDRS Price - MF01 PC06 Plus Postage.

Descriptors Algebra Arithmetic, \*Rehavioral Objectives, \*Curriculum, \*Elementary School Mathmatics, \*Evaluation, Geometry, \*Cojectives, Ser Theory

This is the second volume of a series produced by the State Education Department of the University of the State of New York, Mathematics objectives and sample items included were originally developed by four local school districts and are not intended to be official or comprehensive, but an aid to teachers in constructing curricula and making class-room goals clear and presise. The document presents a series of examples, each of which states in objective and since a sample item. There are ten sections lets, number, numeral and numeration systems, whole numbers, fractions (positive rationals), decimals; measurement, geometry, problem solving word problems, algebra, stat stick and probability. Related documents are SE 014-17 (and 014) 174 (JM)

1833 ED 064 166 Mathematics Objectives, Levels K-4 [Project SPPED. System for Program and Pupil Evalua-tion and Development].

New York State Education Dept. Albany Bureau of School and Cultural Research

Pue Date -71

EDRS Price - N Fol. PC04 Plus Postage.

Descriptors. Ar immetic, \*Behavioral Objectives, \*Curriculum, \*Elementary School Mathematics. \*Evaluation, Number Systems, \*Objective

This is the first volume of a series produced by the State Education Department of the University of the State of New York. Mathematics objectives at d sample items included were originally developed by four local school districts of the not intended to be official or comprehensive, but it aid to teachers in constructing curricula and making classroom goals clear and precise. The document presents a series of examples, each of which states an objective and gives a sample item. There are five sections, each covering one level. Level four is the largest and is subdivided into, number, numeral, and numeration systems, whole numbers, measurement, geometry, problem solving word problems, algebra statistics and probability. Related documents are \$6.014.173 and 0.14.175.73M.

1834 1 D 1664 165 Mathematics Objectives, Level 9 (Project SPPF45) System for Program and Pupil Evaluation and Development).

New York State I ducation, Dem. school and Cultural Research. Pro Date

FDRS Price - MF01 PC03 Plus Postage

Descriptors Appenra Ambrican (Factor) of a substitute of Calorinolating (fine and a substitute of Objectives (Secondae) School (Managara) tagerements

This is the sixth column of a series p be State Education Department is the Linear of the State of New York. Mathematics object and sample stems, actuated were engineers for looped by tour local school districts and are not reof a be official of comprehensive, but in aid to teachers in constructing curricular and in ways and toon goals clear and precise. The document per sents a series of examples, each of which series in ibjective and gives a sample nem, there are 19 sections, number, numeral, and moneration secde numbers, tractions (positive rationals) ter as, integers, real numbers, ratio, proportion, and percent, theusurement geometry problem on ying word problems, algebra statistics and problem bility, and trigonometry functions, for it, at documents, see SF 014 174 and (014 175 ) [M].

1835

Henderson, George 1 4nd Others

Guidelines to Mathematics, 6-8, Key Content Objectives, Student Behavioral Objectives, and Other Topics Pelated to Grade 6-8 Mathematics We consin State Dept. of Public Instrustion, Made SUM

44p. Bulletin No. 186

EDRS Price - MF01 PC02 Plus Postage.

Obscripter \*Curnculum Cundes, \*Ora h b \*Grade \*, \*Grade \*, \*Mathematics Curnculum GRADES OR AGES Grades (\*, 8 N. 1811 c) MATTER Mathematics ORGANIZATION AND PHYSICAL APPEARANCE. The gode is divided into three chapters. The central and singest chapter, which outlines course content is fariner subdivided into 17 units, one for each of 17 content objectives. This chapter is in list form. The coule is offset printed and staple-bound with papers, or OBJECTIVES AND ACTIVITIES. The central chapter lists 17 mathematical concepts so, has reconstituted. meration systems, ratio and proportion, size and shape, measurement, and statistics and probability A list of related he havioral objectives for each concept at each grade level is then presented. A "supmary just by orader K-S is also included. No specific activities are mentioned, a thinger one chapter gives general guidelines on developing problem-solving situations INSTRUCTIONAL MATERIALS No mention STUDENT ASSESS MEN". Readers are referred to the 200 to for grades K-5 (SP 00" 249). (RT)

ED 051 188

Chandler, Arnold M. And Others Guidelines to Mathematics, K.6. Key Content Objectives, Student Behavioral Objectives, and Other Topics Related to Elementary School Mathematics.

Wisconsin State Dept. of Public Instruction, Mad-SOD

58p., Bulletin No

EDRS Price - MFG1 PC03 Plus Postage.

Descriptors - Curriculum Guides, \*Flementary Education, \*Elementary School Mathematics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 8, Grade 6, \*Kindergarien - Mathematics Controlled ricaliune

GRADES OR AGES KIN SUBJECT MATERS Mathematics ORGANIZATION AND 2HYSICAL APPEARANCE. The giner is divided into several chapters. To central and longest chapter, which outlines cours, content, is further subdivided into 15 units, one for each of 15 content objectives. This chapter is to list form. The guide is offset printed and staple-bound with a paper cover OBJECTIVES AND ACTIVITIES. The central chapter lists 15 mathematical concepts such as mumoration systems, ratio and proportion Size and shape, or measurement. A list of related behavioral objectives for each concept at each grade live is then presented. No specific activities are more noned, although one short chapter gives get a guidelities on developing problem-solving solvings in those INSTRICTIONAL MATERIALS Associated



ED 049 752

Starkweather, Ann. Comp.

Instructional Objectives for a Junior College Course in Introduction to Mathematical Think-

California Univ., Los Angeles. ERIC Clearinghouse for Junior Coll. Information Pub Date. Jun 71 Note. Up

84

EDRS Price - MF01 PC01 Plus Postage.
Descriptors \*Behavioral Objectives, \*Mathematical Concepts, \*Mathematics, \*Mathematics Instruction, \*Two Year Colleges

These instructional objectives have be in selected from materials submitted to the Curriculum Laboretory of the Graduate School of Education at UCLA Arranged by major course goals, these objectives are ffered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. For other objectives in related courses see: ED 033-683 (College Algebra); ED 033 687 (Calculus and Analytic Geometry), ED 033 688 (Geometry); JC 710-120 (College Mathematics), and JC 710-129 (Intermediate Algebra) (MB)

1838

ED 049 751

Starkweather, Ann, Comp.

Instructional Objectives for a Junior College Course in Intermediate Algebra.

Canforma Univ. Los Angeles, ERIC Clearinghouse for Junior Coll Information Pub Date Jun "! Note 13p

Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA. Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into enstructors to translate other instructional units firm specific measurable terms. For other objectives in related courses see ED 033-683 (College Algebra); ED 033-678 (Calculus and Analytic Geometry); ED 033-698 (Geometry), JC 710-120 (College Mathematics), and JC 710-130 (Introduction to Mathematics). ematical Thinking<sup>1</sup> (MB)

839

ED 049 743

Starkweather, Ann, Comp.
nstructional Objectives for a Junior College Course in Computer Appreciation.

California Univ., Los Angeles. ERIC Clearinghouse for Junior Coil. Information.

Pub Date. Jun 71

EDRS Price - MF01 PC01 Plus Postage.

Descriptors \*Behavioral Objectives, \*Computer Oriented Programs, \*Computer Science, \*Two Year Colleges

These instructional objectives have been selected from materials submitte [15] the Curriculum Labora-tory of the Gradiate \$1.5 to of Education at UCLA. Atranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. (MB)

1840

ED 049 742

Starkweather, Ann. Comp.

Instructional Objectives for a Junior College

Course in College Mathematics.
California Univ., Los Angeles ERIC Clearinghouse for Junior Coll. Information
Pub Date. Jun 71 Note 32p

EDRS Price - MF01 PC02 Plus Postage.

Descriptors \*Behavioral Objectives, \*College Mathematics, \*Mathematics Instruction, "Two Year Colleges

These instructional objectives have been selected from materials submitted to the Curriculum Laboratory of the Graduate School of Education at UCLA Arranged by major course goals, these objectives are offered simply as samples that may be used where they correspond to the skills, abilities, and attitudes instructors want their students to acquire. These objectives may also serve as models for assisting instructors to translate other instructional units into specific measurable terms. For other objectives in related courses see ED 033 683 (College Algebra), ED 033 687 (Calculus and Analytic Geometry); ED 033 698 (Geometry), JC 710 129 (Intermediate Algebra), and JC 710 (30 (Introduction to Mathematical English)). (MB) cal Thinking) (MB)

1841

ED 047 940

Cash J. Maryin

An Individualized Module for Specific Performance Objectives in Sets, Non-Metric Geometry and Relations.

Maryland Unix, Bultimore Dix of Education Pub Date Dec 69

EDRS Price - MF01 PC02 Plus Postage.

Descriptors - Algebra, "Graphs, Individualized Instruction, Inequalities, Instruction, Instruction, Postage - Algebra, "Graphs - Postage - Section 1987 - Algebra - Section 1987 - Algebra - Postage - Post tional Materials, Mathematics, Objectives, \*Secondary School Mathematics

This booklet is a sample activity from an individualized instruction unit in mathematics. Agreement between the performance specified in the units' objectives, the performance taught in the instruction activity, and performance required on the posttest was a key criterion during the development of this material. The student is told what he is expected to be able to do at the end of the activity, and how the particular activity relates to the entire instructional unit. The material presented deals with the solution of linear equations and the graphing of linear inequalities. (Author RS)

1842 ED 036 439 Mathematics Guidelines for Indiana Schools K-12. Indiana State Dept. of Public Instruction, Indianapolis

Pub Date - 69 Note 104p.

EDRS Price - MF01 PC05 Plus Postage. Descriptors - Curnculum Desclopment.

riculum Ecaluation, Curriculum Guides, Educa-tional Objectives, \*Elementary School tional Objectives, \*Elementary School Mathematics, Mathematics Education, \*Secondary School Mathematics

This publication is a mathematics curriculum guide for the schools in the state of Indiana. Its purpose is to assist local school districts in the evaluation of existing mathematics curricula and to promote the development of better mathematics programs at all grade levels. This guide offers philosophies of elementary and secondary mathematics instruction as well as objectives in teaching mathematics. Elementary performance objectives are organized in terms of the unifying concepts which appear throughout the elementary school mathematics program. Secondary performance objectives are presented in terms of specific course objectives. A guide for textbook selection, a checklist for evaluating textbooks, and teacher and student histograms. hibliographies are also included (FL)

1843 ED 035 568

Alkın, Marvin C.

Mathematics, K-3, Instructional Objectives Exchange.

California Univ., Los Angeles. Center for the Study of Evaluation

Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research

Burcau No. BR-6-1646 Pub Date [69] Note 190p.

Descriptors

\*Educational Objectives, \*Elementary School Mathematics, \*Evaluation, Grade 1, Grade 2, Grade 3, Kindergarten, \*Mathematical Concepts, Testing

This collection contains one hundred secentlyfour objectives and evaluation items for mathematgrades kindergarten through three. objectives and measurement items were developed the Instructional Objectives Exchange (IOX) staff and formulated from curricular material sub-

mitted of teachers, schools, and school districts. To date, these materials have not been used in the classfoom not have they been subjected to quanty control procedures. Both the behavior aspect and the content of each objective have been selected so that the student is required to learn processes and con-cepts which are exential to the study of mathematiies. Some objectives require the student to do no more than recall knowledge, while others require him to apply his knowledge or analyze problems Most objectives are accompanied by four sample items which are designed to assess the student's acquisition of the desired behavior. Ocjectives a c arranged according to ascending grade level and are organized into the following categories, sets, numbers, numerals and numeration systems, operations and their properties, measurement, geometry, relations, functions and graphs, probability and statis-ties, applications, and problem solving, and mathematical semences, order and logic (FL)

ED 035 567

Alkin, Marsin C

Mathematics, 7-9, Instructional Objectives Exchange.

California Univ. Los Angeles. Center for the Study of Evaluation

Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research

Bureau No BR-0-1046 Pub Date [69]

Note - 282p EDRS Price - MF01 PC12 Plus Postage. Descriptors "Educational Objectives, "Evalua-tion, Grade ", Grade 8, Grade 9, "Mathematical Concepts, Mathematics "Secondary School Mathematics, Testing

This publication is a coilection of two hundred sixty-five objectives and evaluation items for mathematics grades seven through nine. The objectives and measurement items were developed by the Instructional Objectives Exchange (IOX) staff and formulated from curricular material submitted by teachers, schools, and school districts. At present, these materials have not been used in the classroom nor have they been subjected to quality control procedures. Both the behavior aspect and the content of each objective have been selected so that the student is required to learn processes and concepts which are essential to the study of mathematics. Some objectives require the student to do no more than recall knowledge, while others require him to apply his knowledge or analyze problems. Most objectives are accompanied by four sample items which are designed to assess the student's acquisition of the desired behavior. Objectives are arranged according to ascending grade level and are organized into the following categories sets, numbers, numerals and numeration systems; operations and their properties, measurement, geometry, relations. functions and graphs, probability and statistics; applications and problem solving, and mathematical sentences, order and logic (FL)

1845 ED 034 702

Alkin, Marsin C 4nd Others Mathematics 4-6 Instructional Objectives Exchange.

California Unic , Los Angeles Center for the Study

of Evaluation

Spons Agency Office of Education (DHEW),
Washington, D.C. Bureau + Research

Bureau No. BR-6-1646

Note 250p

Note 250p
EDRS Price - MF01 PC10 Plus Postage.
Descriptors Arithmetic, "Elementary School
Mathematics, "Evaluation, Country, "Measurement Objectives, "Objectives, "Test Construction
This collection contains 253 objectives and
related evaluation items for mathematics grades
four to text. The following a regarder gray included. four to six. The following categories are included -(1) sets, (2) numbers, numerals, and numeration systems, (3) operations and their properties, (4) measurement, (5) geometry, (6) relations, functions and urement. (3) geometry, (6) relations, functions and graphs, (7) probability and statistics, (8) applications and problem solving, and (9) mathematical sentences, order and logic Each objective consists of four elements - (1) the objective, (2) measurement items, (3) means for judging the adequacy of student responses, and (4) an IOX rating. Each objective is stated in operational terms, and is identified by a Category and a Sub-Category, which serve to limit and define it. Finally, the majority of the objectives are accompanied by four sample items, each of which is designed to test the student's acquisition of the desired behavior (RP)



1846 ED 033 698 Capper, Michael R., Comp.
Instructional Objectives for a Junior College Course in Geometry. California Univ., Los Angeles. FRIC Clearinghouse Cantornia Univ., Los Angeles. FRIC Clearinghouse for Junior Coll. Information. Pub Date. Nov. 69. Note. 34p.
ELRS Price - MF01. PC02. Plus. Postage.
Descriptors. \*Behavioral. Objectives. \*Geometry.
\*Two Year Colleges.
See JC 690. 392 above.

ED 033 687 Capper Michael R. Comp.
Instructional Objectives for a Junior College
Course in Calculus and Analytical Geometry.
California Univ., Los Angeles, ERIC Clearinghouse
for Junior Coll. Information Pub Date Nov 69 Note 77p

EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.
Descriptors \*Analytic Geometry, \*Behavioral Objectives, \*Calculus, \*Two Year Colleges See JC 690 392 above [Not available in hard copy because of marginal reproducibility of original [

ED 033 683 Capper, Michael R., Comp. Course in College Algebra,
California Univ., Los Angeles ERIC Clearinghouse for Junior Coll Information. Pub Date Nov 69 Note 55p. EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Algebra, \*Behavioral Objectives,
\*Two Year Colleges
See JC 690 3v2 above

1849 ED 017 454

1849 ED 017 454
SHARPE, GLYN H.
SOME BEHAVIORAL OBJECTIVES FOR
ELEMENTARY SCHOOL MATHEMATICS
PROGRAMS.
Colorado State Dept. of Education, Denver.
Pub Date - AUG66
Note - 30P.
EDRS Price + MF01 PC02 Plus Postage.
Descriptors - Arithmetic. Behavioral Objectives,
\*Educational Objectives, \*Elementary School
Mathematics, \*Evaluation, Geometry, \*Mathematics, Objectives,
THIS PUBLICATION OUTLINES SOME OF

Mathematics. \*Evaluation, Geometry, \*Mathematics, Objectives
THIS PUBLICATION OUTLINES SOME OF THE TERMINAL BEHAVIORAL OBJECTIVES OF THE ELEMENTARY MATHEMATICS INSTRUCTIONAL PROGRAM, INSTRUCTIONAL OBJECTIVES WHICH SPECIFY EXPLICITLY WHAT SKILLS PUPILS HAVE MASTERED ARE INDICATED FOR MANY OF THE TOPICS OF MATHEMATICS. FOR EACH OBJECTIVE, AT LEAST ONE EXAMPLE IS GIVEN TO CLARIFY THE BEHAVIORAL CRITERION WHICH DETERMINES WHEN THAT OBJECTIVE HAS BEEN REACHED FY THE PUPIL CHECKLISTS OF COMPETENCIES FOLLOW OPERATIONAL DEFINITIONS OF MATHEMATICAL CONCEPTS TO SHOW THE RELATIONSHIP BETWEEN THE BEHAVIORAL OBJECTIVE OF AN EXERCISE AND THE TASKS REQUIRED OF THE CHILD, EACH CHECKLIST IS DESIGNED FOR EVALUATING GOAL ATTAINMENT (MMEDIATELY AFTER EACH EXERCISE, (RP)



# OPERATIONS

1900

FD 141 168

R. sers. Sanara Laboratory Mathematics, Curriculum Booklet II -

Anderson County School District 2, Horna Path, Spons Agency Bureau of Elementary and Second-

ary Education (DHEW OE), Washington, D.C. Pub Date

Note: 44p. For related documents, see Sh 022 692-699. Not available in hard copy due to margioul regibility of original document Pub Type Gurdes - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptor - Educationally Disadvantaged, \*Flesty School Mathematics, Elementary Sec-Education, Experimnal Learning, nental Concepts, Individualised Institute \*Instructional Materials, Laboratory Procedures. Low Achievement, Mathematics Education, \*Units of Study, \*Whole Numbers, Mathematics Worksheets

Identifiers Elementary Secondary Education Act Little III

This booklet is one of a set of five booklets which emprise the basic curriculum for "Mathematics Laboratories for Disadvantaged Students, tionally validated Title III ESEA project. This publication provides evaluation materials and student materials related to whole numbers. Topics included are place value, addition, subtraction, multiplica-tion, and division. The project was designed for mid-dle school students (grades 5-8). (RH)

1901 ED 133 953

Basic Number Facts: 1-2-3.

Florida Learning Resources System CROWN, Jacksonville

Note 44p Pub Type Gindes - General (050)

Condex - General (60)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors \*Arithmetic, Elementary Education, \*General Education, Instructional Materials, \*Learning Activities, \*Sequential Approach Teaching Guides

The teaching guide outlines developmentally seadenced activities for learning the basic computational skills. Sections cover sequential steps for the addition, subtraction, multiplication, and division of whole numbers, information on developing building kits and sample worksheets; the use of number sheets (sample sheets are provided); and the use of teaching machines for math. The bulk of the document focuses on individual and group activities for learning number facts. Each activity or game is described in terms of materials needed, construction of materials (where applicable), and activity directions. Also included is a list of commercial materials (SBH)

1902 ED 127 193

Bray, Edmund C. Redin, Paul
Multiplication and Motion: MINNEMAST Coordinated Mathematics - Science Series, Unit 25. Minnesota Univ., Minneapolis, Mirresota School

Mathematics and Science Center sons Agency National Science Foundation. Spons Agency N Washington, D.C. Pub Date 71 Note 163p For

For related documents, SE021201-234, Photographs may not reproduce

Available from MINNEMAST, Minnemath Cen-. analog room - VIONNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 554 (4)

Published - MF01 PC07 Plus Postage.

Descriptors \*Correculum Guides, Elementary Education, \*Elementary School Mathematics. \*Flementary School Science, Experimental Curriculum, Graphs, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Multiplication, Primary Education, Process

Education, Science Education, Units of Study Identifiers \*MINNEMAST, \*Minnesota Mathematics and Science Teaching Project

This volume is the twenty-fifth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades intended for use by third-grade teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of three groups of activities. The purposes and procedures for each activity are discussed. Examof questions and discussion topics are given.

and in several cases into masters, stories to reading aloud, and other instructional materials are included in the book. In this unit, data collected in foot racing and our racing activities are graphed on grids and property of the graphs are examined. The idea of slope is used to motivate an initoduction to multiplication. Multiplication as repeated addition is reviewed, as is the relationship to ween arrays and multiplication. A "multiplication machine" and cards for use in a multiplication genre are provided (SD)

1903 ED 127 192

Adams, Patricia 4. Ed. Nyberg, Luanne Ed. Change and Calculations: MIN. "MissT Condinated Mathematics - Science Series, Unit 24, Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spons Agency National Science Foundation, Washington, D.C.

For related documents, Pub Date 7 Note 158p. SF021201-234, Photographs may not reproduce

Available rom MINNEMAST, Minnemath Cen-ter, 700 Washington Ave., S.E., Minneapolis, MN ter. "1

Pits Type Gi des General (050) I RS Price - MF01 PC07 Plus Postage. Descriptors \*Algorithms, Computers. r el im Guides, Flementary Education, "Ele-nico ry School Mathematics, "Elementary School, Science, Experimental Curriculum, "In-ter' sciplinary Approach, Learning Activities, Mathematics Education, Measurement, Primary Education, Process Education, Science Educa-tion, Units of Study Identifiers \*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project.

This volume is the twenty-fourth in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary rades. Intended for use by third-grade teachers grades. Intended for use by time-grade calculations this unit guide provides a summary and overview of e unit, a list of materials needed, and descriptions our groups of lessons and activities. The purand procedures for each activity are dis-.d Examples of questions and discussion topics given, and in several cases ditto masters, stones for rea ling aloud, and other instructional materials are included in the book. This unit covers both computational and measurement ideas. In the two sets of lessons on computation, the class simulates a computer in activities designed to promote understanding of addition and subtraction in a place value system. Measurement activities are related to liquid volume, length and time. Two job booklets, one on pouring and the other on balancing as methods of measurement, provide activities for independent work by students (SD)

1904 ED 127 181

Blair, Kav W. Edmunds, Poliv T. MINNEMAST Coordinated Mathematics - Science Series, Unit 13.

Minnesota Univ., Minneapolis, Minnesota School

Mathematics and Science Center

Spons Agency National Science Foundation, Washington, D.C.

Pub Date Note 133p . ! SE021201-234 For related documents, see

Available from MINNEMAST, Minnemath Center, 720 Washington Ave., S.E., Minneapolis, MN 55414

Pun Type Gindes - General (050)

Pub Type Grudes - General (050)
EDRS Price - MF01 PC06 Plus Postage.
Descriptors Basic Skills, \*Curriculum Gardes.
Elementary Education, \*Elementary School Mathematics, \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Number Systems, Primary Education, \*Primary Education, Science, Education, Science, Education, Science, Education tion, Process Education, Science Education, Units of Study Identifiers \*MINNEMAST, \*Minnesota Math-

ematics and Science Teaching Project

This volume is the thirteenth in a series of 29 coordinated MINNEMANT units in mathematics and science for kindersarter and the primary grades. Intended for use by first-garde teachers, this unit guide provides a summary and overview. The unit, a list of materials needed, and descriptions of six groups of lessons. The purposes and procedures for each activity are discussed. Examples or questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This volume begins with a review of addition by joining sets and then introduces addition and subtraction on the number line. The use of the addition slide rule is introduced and problems for practice in addition and subtraction are provided Properties of addition and subtraction are explored, and place value notation is introduced (SD)

ED 127 179

River, Kur B Lamunds, Polly I Introducing Addition and Subtraction: MIN-NEMAST Coordinated Mathematics - Science Series, Unit 11.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center pairs. Agency. National Science Foundation,

Spanis Agency Washington, D.C.

Pub Date 71 Note 141p. F SF021201-234 For related documents, see

Available from MINNEMAST, Minnemath Center, 720 35414 720 Washington Ave., S.E., Minneapolis, MN

Pub Type Guides - General (050)

EDRS Price - MF01 PC06 Plus Postage.

Descriptors Addition, Basic Skills, \*Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Elementary School Science, Experimental Curriculum, \*Interdisciplinary Approach, Learning Activities, Mathematics Education, \*Number Systems, Primary Educa-tion, Process Education, Science Education, Subtraction, Units of Study Identifiers \*MIS'NEMAST, \*Minnesota Math

ematics and Science Teaching Project

This voiume is the eleventh in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades Intended for use by first-grade teachers, this unit guide provides a summary and overview of the unit. a list of materials needed, and descriptions of five groups of lessons. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. In this unit, the operations of addition and subtraction of whole numbers are introduced and developed Section. I introduces the "a+b" notation and related addition to the joining of sets. In section two, subtraction is developed us; ig missing addend prob-lems. Later sections concern (3) grouping, even and odd numbers, and arrays, (4) introduction to the number line, and (5) numerals through 99. Three supplementary games are also included. (SD)

1906 ED 123 084 Corler, Norma, Ed

Individualized Math Problems in Whole Numbers. Oregon Vo-Tech Mathematics Problem Sets.

Oregon Math Education Council, Salem, Oregon State Dept. of Education, Salem. Career and Vocational Education Section ab Date 74

Pub Date 74
Note 125p; For related documents, see 8f: 920
628-647; Occasional Marginal Legibility
638-640; Gom. Continuing Education 100 cas-

Pub Type Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS,

Descriptors Individualized Instruction \*Instructional Materials, Mathematical Applications, Mathematics Education, Number Concepts, \*Problem Sets, Secondary Education, \*Secondary School Mathematics, \*Vocational Education, \*Whole Numbers

identifiers \*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse: ocations. Solutions are provided for all problems. Problems in this set require computations involving whole numbers. Problems are drawn from nineteen vocational areas, clerical work, aviation mechanics, diesel mechanics, wood products, wastewater technology, forestry fire and police science, agriculture, forest products, nursing, industrial, electrical and hydraulics technology, marketing, drafting, machine tools, indus(rial mechanics, auto mecahnics, construction, real estate, and food processing (SD)



1907

ED 123 080

Sect Norman Ka

Individualized Math Problems in Simple Equations. Oregon Vo-Tech Mathematics Prablem

O egon Mars Education Courter Salem, Oregon State Dept. of Education, Salem, Career and Volumetrone, Education Section to Date 174

Pub Date 74 Note: 1976 For retard distinguishes see SE 020

528 648 Occasional Marginal Legibility Visible from Communing Education Public S PO Box (491) Portland Oregon 97207 FDRS Price - MF01 Plus Postage, PC Not Availa-

# ble from EDRS.

completes \*Nigebra, Individualized Instruction Structures Materials Mathematical Applica-1318 Martinuatics Education, \*Problem Sets, Security Education, \*Secondary School The Markets Pid Ration, "Troblem Ses, Secondary Education, "Secondary School Moreovations, "Vocational Education for their "La lations, (Mathematics), "Oregony Feet Math Project

to in eighteen sets of individualized to remain the Oregon sets Main Project Hach of these problem nack izes is organized around a mathematical topic and rans problems related to diverse sos mons. So alto mossited for all problems. Problems of 8 cm me require solution of linear equations, \*. ... the regard solutions, and quadratic equations is mean equations, and quadratic equations is means to drawn from fifteen sociational areas serie asure, industrial, electrical and hydraphes form on go horestly, drafting, clemeal work, asiasign mechanics, diesel mechanics, electronics, marsome a linetustrial melinamos, fire and police science, a islamator to have any tood processing, forest proto its and rate mechan is (SID)

FD 120 546

Haraman Land

## Basic Mathematics Operations-A Math Practice Booklet

Authors The State Univ. New Brunswick, NJ Villmig warm Cab

Signature New Jersey State Dept of Education Frontier Dr. of Vocational Education Signature New York 192-619
Signature Feb 76
Note 177, For terated documents, see Ch. 006

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Ver able from New Jersey Vocational-Technical Correction Laborators, Rutgers-The State University, Buriding 4103 Kilmer Campus, New Brunswick, New Jersey (18903 (\$1.25) For Type Books (010)

For Pape Hook (010) EDRS Price - MF01 PC02 Plus Postage. Descriptors \*Arithmetic, Basic Skills, Educational Media, Guides, \*Mathematical Applications, Mathematics Curriculum, Mathematics Materials, \*Remedial Mathematics, \*Secondary Libration, Tests, Vocational Education, Vocational High Schools, \*Workbooks

included for use in sociational high schools, the second is designed to help the student understand and develop skill in performing the four basic securione addition, subtraction, muiabout the mid division. Also stressed is the correct reading and writing of numbers. The booklet consee's feep unatory text, arithmetic problems, probems with practical applications (written as job issignments), puzzles, and quizzes (RG)

1909

ED 098 060

Flums, Diane

Natural Numbers, Whole Numbers, and Integers, Learning Activity Package, Pre-Algebra, LAP 7. Notety Six High School, S. C. Pun Date

water 13p. Nee ED 069 503 for other pre-algebra 1 APs

Pub Type Guides General (050) EDRS Price - MF01 PC01 Plus Postage.

Descriptors Algebra, Curriculum, \*Individualized lostración, \*Instructional Materials, \*Learning Midales, Mathematics Education, Number Con-cepts, Number Systems, Objectives, Secondary School Mathematics, Teacher Developed Materials, Teaching Guides, Units of Study

This teacher-prepared Learning Activity Package LAP) for individualized instruction in topics in prea gehra covers the natural numbers, whole numbers, and integers. The unit contains a rationale for the inaterial, a list of behavioral objectives, a list of reso a cosmic lading texts (with reading assignments at a problem sets specified) and tape recordings, a problem serior student so because on suggestions tot advanced study, and references aDTs

1910 1.10 (192.99)

Pedia Danie Pedia Micro

Mathematics for the Elementary School, Unit 12, Addition and Subtraction.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Cente-

Spons Agency National Science Lieuweather. Washington, D.C.

Pub Date 68

Nage 1986

Published Guides - General (080)

# EDRS Price - MF01 PC04 Plus Postage.

Descriptors \*Addition Cornealism \*Flories tary School Mathemati micritial Learning 100 struction, \*Institut internals. Number Concepts, \*Subtraction saming Guides, Units of Study, Worksheets

lderaffers MINNEMANT, \*Minnesona Mark eminies and Source Teaching Project, Norms gratifies Number Operations Properties (Mathematics)

The Minnesota School Mathematics and Science Leaching (MINNEMAST) Project is characterized by its emphasis on the coordination of pand science in the elementary school carry 177 Units are planned to provide children with a collaboration in which they learn various concepts from subject areas. Fach subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and explotted Content is presented in story Jashion. The stories serve to introduce concepts and lead to activities. Imbedded in the pictures that accompany the stories are examples of the concepts presented This unit introduces the child to various tools which can help him to visualize and understand the operation of finding a sum or a missing addend. Extensive manipulations on a number line and with a simple slide rule are prescribed in order to help the child gain a concrete feeling for addition on the number line. The communitative and associative properties of addition are developed from these number line activities. Execuses with nomographs provide additional work on the above topics. Worksheets and commentaries to the teacher are provided and additional activities are suggested (JP)

1911 ED 090 002

#### Thompson, Russ - Fuller, Albert Basic Math I. Package 01-03, Multiplication and Division of Whole Numbers.

Arnold Public Schools, Nebr.

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D C Pub Date 72

Note 60p. For related documents, see SE 017 553, 554, and SE 017 556 through 57

# EDRS Price - MF01 PC03 Plus Postage.

Descriptors Algorithms, Division, Grade 9, \*Instructional Materials, Multiplication, \*Number Concepts, Objectives, \*Secondary School Mathematics, \*Teaching Guides, \*Tests, Whole Numbers

Identifiers Elementary Secondary Education Act Title III. Estimation (Mathematics), \*General Mathematics, Properties (Mathematics)

This teacher guide is part of the materials prepared for an individualized program for ninth-grade algebra and basic mathematics students. Materials written for the program are to be used with audiosisual lessons recorded on tape cassettes. For an evaluation of the program, see ED 086 545. In this guide, the teacher is provided with objectives for each topic area and guided to materials written for a given topic. Three short criterion tests are included for each topic covered. The work in this package provides practice with multiplication and division with whole numbers. The commutative and associative properties for multiplication are reviewed and problems involving the distributive law are presented. Work is provided on multiplication 25-10, 100 and 1000 and on estimating the answer 1 (division problems. This work was prepared under an ESEA Title III contract. (JP)

ED MALLERY

Thompor Kow Fall & 1.160 Basic Math 1, Puckage 01-02, Addition and Sub-traction of Vehole Numbers

Arnold Public Schools Nobe Sprits Agency - Burgan of Medical provides the conary Education (DHEW 301), Washington The Pub Date:

de Date 11. ote 1895. Evertelated documents, sec 81-017-883. and 81-017-888 through 878. Some

FDRS Price - ME01 PC03 Plus Postage

Descriptions Addition Views those Collade to be divide adversed festivation. Plastic to see Marceles. \*Number Concepts Observes \*Necondary School Mathematic Subtraction. \*Leach Condes. \*Tests Whole Numbers.

Signature Statement of Statement of Statement of Statement (New York Trailer of Statement of Sta Title III Estimation (Nutbeniancs) Mathematics

This featurer goldens pain of the majoricis promited for an inclusive today of program for more by more programs. sebra and have mather aties students. Miner is written for the program are no be used with a coevision lessons to orded on time cassety's Fig., evaluation of the program see LD (1888). Fig. earder the teacher is provided with objectives to each topic area and gaided to materials written to a given topic. Three short criterion tests are cluded for each topic covered. The work is this package provides practice with addition and car traction of whole numbers, reviews the approach tive and associative properties for auditor, and provides work on estimation of solutions to probfems. This work was prepared under an ESLX Like III contract (JP)

# FD 079 125 Activities with Whole Numbers, Mathematics (Experimental): 5212.73.

Dade County Public Schools, Minnin, Lia Pub Date

Note: 13p., Are Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Algorithms, Behavioral Objec-Computation, Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Ondes, Fests \*Whole Numbers
Identifiers \*Quininester Program

Designed for the student who has acquired hash omputational skills with non-negative ratios ... numbers, this guidebook delineates manimism course content to further develop students' compatational skills with whole numbers. Place value and estimation are also covered. General goals, performance objectives, a course nutting, suggested teaching strategies, sample test items, and a list of six veter ences are provided. The quin is based on chapters from the text, "Essentials of Mathematics 2", Sobel, Maletsky and Hill (DT)

1914 FD 072 980

Wike Holler W. Austin, Robert J.

Understanding Math - Part I, Marie H. Katzenbach School for the Deat, West Tienton, N.J., New Jersey State Dept. of Educa-

non, Trenton Div of Vocational Education, Rat gers. The State Univ. New Branswork, N. 1 Curriculum Lab

Pub Date Sep Note 165p

EDRS Price - MF01 PC07 Plus Postage. Descriptors \*Algorithms, \*Arithmetic, \*Dealness, \*Instructional Materials, Mathematics Education. Number Concepts, \*Remedial Mathematics, \*Secondary School Mathematics. \*Special Education, Whole Numbers

This is the first workbook-test in a two-part series written for deaf students. It is remedial in nature, aimed at the secondary level, and covers addition, subtraction, multiplication, and division of whole numbers. The use of the number 10 in explaining the concepts presented is stressed throughout. For the second workbook, see SE 015-828, and for the teacher's guide, see SE 015-829. (DT)

1915 ED 069 528

Crook, Edwin F

Equa-formu-alities (Equations - Formulas -Inequalities). Teacher's Guide.

Oakland County Schools, Pontiac, Mich Spons Agency Bureau of Flementary and Second ary Education (DHFW OL), Washington, D C Pub Date

Grant OEG-68-05635-0 Note: 149p., Revised Edition



#### FDRS Price - MF01 PC06 Plus Postage

Descriptors Cornection Graphs, \*Inequalities, listraction, \*Instructional Materials, Low Abdits Students, Mathematical Formulas, Mathematics I dia atom, Objectives, \*\*Secondary School Mathematics \*\*Loaching Guides, Units of Study Efertities, \*\*Leaching Condes, Units of Study Efertities, \*\*Leaching Condes, Units of Study

Title III Equations (Mathematics)

This guide to accompany "Equa-formulainties" contains all of the student information to SE 015 in this supplemental teacher materials. After each section there is a fishing of terminal objectives, dis custion questions, and suggested approaches. Also included is a list of necessary equipment and teaching aids. Related documents are SF 015-334 - SF 015-339 and SE 015-340 - SF 015-347 - This work was prepared under an FSEA Inte III contract

1916 FD 069 527

Chuich Figure 1

Equa-formu-ulities (Equations - Formulas -Incouglities).

Oakland County Schools, Portiac, Mich

Spons Agency - Bureau of Flementary and Second-iry Education (DHEW OF), Washington, D.C. Pub Date - Nov. 70 Pub Date Nos 70
Grant OFG:68-05635
Note 78p, Revised Edition
EDRS Price - MF01 PC04 Plus Postage.

Descriptors Curriculum, Graphs, \*Inequalities, Instruction, \*Instructional Materials, Low Ability Students, Mathematical Formulas, Mathematics Education, Objectives, \*Secondary School Math-

ematics, Units of Study, Worksheers Heistifiers - Flementary Secondary Education Act Title III, Equation's (Mathematics)

This instructional unit is designed to serve as an introduction to algebra. Ince and talke mathematical sentences are first presented with open sentences to introduce the use of a variable. Inequalities, formulas, and graphs are the next major concepts discussed. The unit concludes with six projects that attempt to tie the major concepts together. A teacher's guide is also available. Related documents are 8F 015-034. SE 015-337 and SE 015-339. SE 015 47. This work was prepared under an ESFA Title III contract (US)

uevas, Gilherto J. Golden, Edward I

Mathematics: Whole Number Action. Dade County Public Schools, Miami, Fla Pols Date: 77

Pub Date

EDRS Price - MF01 PC02 Plus Postage. Descriptors \*Arithmetic, Curriculum, Instruction, Instructional Materials, Laboratories, Mathematical Applications, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Units of Study Identifiers, \*Quintinester Program

Described is a basic course in whole numbers inwas ingla laboratory approach with emphasis on apparations, designed for the student whose arithmetic skills need reinforcing. After lists of over-tile could, scope, and performance objectives, the gain 20ve suggested strategies, materials, and referer is to 41 topics arranged under seven head-ings. Also included is a sample test and a hibliography of state-adopted and other textbooks. OMM

ED 020 896

FOLEY, JACK L.

ACTION WITH WHOLE NUMBERS.

Pub Date Al GhT Note: 59P

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Addition, Arithmetic, Division, \*Elementary School Mathematics, Extracurricular Activities, \*Instructional Materials, Low Ability Students, \*Mathematics, Multiplication, Subtrac-

Identifiers Flementary Secondary Education Act

Title III

IHIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS A PROJECT FEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (I) ADDITION AND SUBTRACTION WITH WHOLE NUMBERS, (2) TERNS AND PROCEDURES IN MULTI-THIS BOOKLET, ONE OF A SERIES, HAS

PUCATION AND CODINISION AS A PROC ATRIATION AND GITMINION AS A PROC LIST OF FINDING A MISSING FACTOR ACCOMPANYING THEST BOOKEFIS WILL BE A TITEACHING STRATEGY BOOKEFIS WHICH WILL INCLUDE A DESCRIPTION OF FEACHER THE CHNIQUES, METHODS, SUG-GESTED SEQUENCIN, ACADEMIC GAMES AND SUGGESTED VISUAL MATERIALS (RP)

1919 ED 020 893

FOLEY JACK ! DIVISIBILITY TESTS. Pub Date - AUG67 Note - 34P

EDRS Price - MF01 PC02 Plus Postage.
Descriptors - \*Arithmetic Division, \*Elementary School Mathematics, Extra urneular Activities. Instructional Materials, Low Ability Students Mathematics

Identifiers Elementary Secondary Education Act

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUBLIS A PROJECT FEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS FOR THIS PROGRAM. MATERIALS DEVELOPED IN THIS BOOK-LET INCLUDE SUCH CONCEPTS AS (D DIV-ISBILITY TESTS, (2) CHECKING THE FUNDAMENTAL OPERATIONS BY CAST-INGOUT NINES AND (1) AP-PUICATION OF DIVISIBILITY DIVISIBILITY ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUG-GESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS (RP)

ED 020 885

OLEY, JACK L

SETS, SUB-SETS AND OPERATIONS. Pub Date NOV6

Descriptors \*Arithmetic. \*Elementary School Mathematics, Extracurricular Activities, \*Instructional Materials, Low Ability Students, \*Mathematics, \*Set Theory

Identifiers Elementary Secondary Education Act

Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM, THE MATERIALS DEVELOPED IN THIS BOOKLET INCLUDE (I) RECOGNIZING SETS AND THEIR MEMBERS, (2) EQUIVALENT SETS AND EQUAL SETS, (3) FINITE AND INFINITE SETS, (4) OPERATIONS WITH SETS, (7) PICTURING SET RELATIONSHIPS, AND (6) THIS BOOKLET, ONE OF A SERIES, HAS PICTURING SET RELATIONSHIPS, AND (6) SUBSETS AND THEIR COUNT ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUG-GESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED VISUAL MATERIALS

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# PERCENT RATIO AND PROPORTION

Programme Land Agent Berry

Making Comparisons: Ratios. Topo at Module for Locan a Mathematics Laborators Setting

Street Associate San Screen Resolution Williams (No. 2) \* . A.

Not CW 150

G. S. Standard, M. Grands, Apr. 81.
 F. S. Standard, A. Standard, Phys. Rev. B 10, 100 (1990).

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FDRS Price - M101 PC02 Plus Postage

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People Patterns: Ratio, Environmental Module for Use in a Mathematics Laboratory Setting

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toris Agency National Science Foundation West transport DC or Dang 74

North National Training te Tr. For related documents see SE one of 4,322

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FDRS Price: MF01 PC01 Plus Postage.

Noscipions: "Activities: "Learning Laboratories Manner of the arrivalum, "Mathies System: "Ratios Micharlands Necondary Education," "Secondary Society Mathematics, Worksherts."

The meetives of this module incode students to a after the measure on ng the metric system, de-termine of the sold different types, and analyze a profi-cing on a factor Sold either of the worksheets require the ringer at rate is from physical activity, others two dathe teselopment and in sixes strates going Parts of the student's own ody leaching suggestions are not fall (MK)

ED 141 [7] A de r. Norde.

Laboratory Mathematics, Curriculum Booklet V. Percent.

At Johnson County Court District 2, Honga Path

Sterns Agency - Brugau of Highentary and Second-ary Education (DHFW, OB), Washington, D.C. P. 5-Time - 77

# 25 Date 177 Note 256 For related documents, see 85 922 155 or 6 ord copy due to mar-80 g. 2007. In a related documents, see SE 022 692 694. Net available in hard copy due to mark king open in set or ginal document. General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

set ptors. Decimal. Fractions, Inducationally Disadvamaged, \*Elementary School Mathematic is Fernantary Sciondary Education, Experien-tal Learning, \*Fundamental Concerts, It has balanced Instruction, \*Instructional Materi-(S. Laboratory Procedures, \*Low Achievement, Mothernatics Education, \*Percentage, \*Units of State Workshoets

Identifiers Elementur, Secondary Education Act

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The state of the s contains problems in aird to diverse vocations. Noations are provided for all problems. This coming resultes problems concerned with computing percents. Problems are drawn from eighteen vocational areas agriculture mirroring, food processing, com-cal work, forest products, forestry, tire and police so ence, wood products, wastew Her technology in Listrial mechanics, machine tools, auto mechanics, glectronics, diese inschanges, drafting, industrial, viestrical and hydraliacs technology, welding, and real estate (ND)

2004 ED 090 010

Thompson Russ Fuller Africa Basic Math I, Package 01-11, Ratio and Propor-

Arroad Public Schools, Nebr

Spons Agency Buteau of Elementary and Second-ary Education (DHEW OF), Washington D.C.

ary Education of the Property icons. Objectives. Percentage, \*Ratios Mathematics), \*Necondary School Mathematics, \*Teaching Guades, \*Tests

Intentifiers: I omentary Secondary Education Act Life III, \*Go one Mathematics

This teacher guide is part of the materials pre-Fared for an individualized program for ninth-grade algebra and hash, mathematics students. Materials written for the program are to be used with audi-sersual lessons recorded on tape cassettes. For an evaluation of the program, see ED 986 545. In this evaluation of the program, see his 1986 545 in this guide, the feacher is provided with objectives for each tions are and guided to materials written for a given tippe. Three short criterion tests are included for each topic covered. The work in this nathage focuses on the relationships between ratio, proportion, rate, percentage and fractions. This wish was considered and street of the land with which contains a first in ISSA. Take III and work was prepared under an hSFA Title III contract (JP)

ED 090 008

Thompson, Russ Faller, Albert Basic Math 1, Puckage 01-09, Percent.

Arnoid Public Schools, Nebr Spors Agency Bureau of Elementary and Second-ary Education (DHEW OF), Washington, D (

Note: 72 Note: 30p; For related documents, see NE 017553 Inrough 560 and NE 017 562 through 575 Section PC02 Plus Postage.

Descriptors Decimal Fractions, Fractions, Childe le Individualized Instructional Instructional \* Individualized instruction, "instructional Materials, Mathematical Applications, Number Concepts, Objectives, "Percentage, "Secondary School Mathematics, "Teaching Girdes, "Texts Identifies - Elementary Secondary Education Act Title III "General Mathematics

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Activities with Ratio and Proportion, Londer's

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Note: 1889 | Revised ration FDRS Price | MF01 PC12 Plus Pustage | Transform | Testing from Testing Descriptors Carriculum Josti chon, "Liscola-tioner Materials, Low Ability Students, Math ematics Education, Objectives, \*Periconage \*Ratios (Mathematics), \*Secondary School Mathematics, \*Leaching Condes Units of Study Identifiers - Elementary Secondary Education A r die III

This godde to accompany "Activities with Ratio and Proportion. Contains also the student materials in SE 0.5.5 to plus supplied ental teacher materials. als It includes a listing of terminal objectives becomes a campinent and teaching aids, and resource materials. Answers are given to all problems and suggested approaches and activities are presented for each section. Related documents are SE 018, 334, through SE 015, 336, and SE 015, 338, through SE 015, 347. This work was prepared under an ESEA Title III contract (LS)

2007 ED 066 535

Choute Stuart of

Activities with Ratio and Proportion

Oakland County Schools, Pontiac, Mich Sports Agency Bureau of Elementary and Second-ary Education (DHFW OF), Washington, D C Pub Date | Sep 70

Pub Date Sep 70
Grant OEG-68-056-5-0
Note 155p, Revised Euriton
EDRS Price - MF01 - PC06 Plus Postage.
Descriptors Curriculum, Instruction, \*Instructional Materials, Fow Ability Students, Mathimory's Education, Objectives, \*Percentage, processing of the School ematics Education, Objectives, \*Percei \*Ratios (Mathematics), \*Secondary & Mathematics, Units of Study, Worksheets

Identifiers Flementary Secondary Education Act Little III

This instructional unit focuses on writing ratios and proportions in problem situations, solutions by means of proportions, and determination of percentages. A number of experiments are suggested and worksheets and discussion questions are in-luded. The activities are oriented toward situations which the students would probably have had some previous experience. A teacher's guide is also available. Related documents are SE 015 334, SE 015 335, and SE 015 337 through SE 015 347. This wore was prepared under an ESEA Title III contraci (LS)

2008 ED 022 952

Ranmlow Harold I And Others

Occupational Mathematics; Proportions, Report No. 16-T. Final Report.

Washington State Coordinating Coassel for Occas-Washington State Coordinating Could for Occup-pational Education, Olympia. Wishington State Univ. Pullman Dept of Education. Spons Agency Office of Education (DHFW). Washington, D.C. Bureau No. BR-7-0031. Pub Date. Jun 68. Grant. OEG-4-7-070031-1626.

Note 118p EDRS Price - MF01 PC05 Plus Postage. Descriptors \*Arithmetic, \*Fundamental Con-cepts, \*Programed instructional Materials, \*Ratios (Mathematics), \*Textbooks, \*Vocational Education

This programed mathematics textbook is for stadent use in vocational education courses. It was developed as part of a programed series covering 21



#### 90 **Document Resumes**

mathematical competencies which were identified hy university research, is through task analysis or several of cupational clusters. The development of a sequentially ontent structure was also based on these mathematics competencies. After completion of this program the student should be able to distinguish between correct and incorrect proportions, solve a proportion for one unknown quantity when given values for the other three, and solve specific problems misolving proportions. The material is to he used his individual students under teacher supervision. Twenty-six other programed texts and an introductors volume are available as VT 006-882-5-1 006-909, and V1 008-975-11  $M_{\odot}$ 

2069

FD 022 947

Pahmine Hamid F. And Others

#### Occupational Mathematics; Percentage Report No. 16-P. Booklet II. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia, Washington State Univ. Pullman Dept of I ducation.

Spons Agency Office of Education (PHIW), Washington, D C Bureau No. BR-7-0031 Pub Date. Jun 68

Grant | OEG-4 7-070031-1626

1325 Some

## EDRS Price - MF01 PC06 Plus Postage.

Descriptors "Arithmetic, "Fractions, "Percentage, \*Programed Instructional Materials, \*Lextbooks, "Vocational Education

This programed mathematics textbook (Volume Hi is for student use in vocational education courses It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of thir program the student should be able to (1) convert to a percentage from a fraction of the form a b, where 0 is less than (a,b) and these are less than 1,000, (2) convert from a percent to a fraction, (3) convert from a decimal to a percentage, (4) convert from a percent to a decimal, and (5) solve percentage problems of the 1 cm A = 7 x Base for A, 11, or Base given the other two factors. The material is to be used by individual students under teacher supervision Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975 (EM)

2010

ED 022 946

Ruhmlow, Harold F. 4nd Others

#### Occupational Mathematics; Percentage, Report No. 16-P. Final Report.

Washington State Coordinating Council for Occupational Education, Olympia, Washington State Univ. Pullman Dept of Education

Spons Agency Office of Education (DHEW), Washington, D.C. Bureau No. - BR-7-6031

Pub Date Jun 68

Grant OEG-4-7-070031-1626

EDRS Price - MF01 PC05 Plus Postage.
Descripte is "Arithmetic, "Fractions, "Percentage, \*Programed Instructional Materials, \*Textbooks, "Vocational Education

This programed mathematics textbook is for stuident use in vocational e ucation courses. It was developed as part of a nro gamed series covering 21 mathematical competens ex which were identified by university researchers through task analysis of several occupational clisters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to: (1) convert to a percentage from a fraction of the form a b, where 0 is less than (a,b) and these are less than 1,000, (2) convert from a percent to a fraction, (3) convert from a decimal to a percentage, (4) convert from a percent to a decimal, and (5) solve percentage problems of the form A = 0 x Base for  $A_s = 0$ , or Base given the other two factors. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT-006-822-VT-06-909, and VT-006-975 (EM)



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Educational Programs Chat Work, A Resource of Exemplary Educational Programs Approved by the Joint Dissemination Review Panel Education Discoon, Department of Health, Education, and Welfare Sixth Edition

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ED 144 846 Saidin Marky V. Higging Jon L.

Activity-Based Learning in Elementary School

Mathematics: Recommendations from Research, FRIC Information Analysis Center for Science, Maintenaturs havironinenta' fid it attor Columbia.

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Published Reports Research (143)

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2103 FD 139 654 National Council of Supervisors of Mathematics Position Paper on Basic Mathematical Skills

National Council of Supervisors of Mathematics Spons Agency Stational Institute Elacation (DHEW) Washington, D.C.

Pub Date Jan

Note: 40

Pub Uspe Guides General (180)
EDRS Price - MF01 PC01 Plus Postage
Descriptors \*Basic Skills, \*Correction, Fatura
tomic Policy Elementary School Mathematics
for the Correction of the Correction Elementary Secondary Education Consternes, Instruction, Mathematics Education, Second aty School Mathematics

Identifiers. National Council of Supervisors of Mathematics.

This statement by the National Council of Supervisors of Mathematics includes a definition of obasic skills" in mathen atics and a rationale for the position that "basic skills" must include more than comi'en basic skill areas are identified and discussed. Basic skills and the student's future, minimum essentials for high school graduation, develop-ing the basic skills, and evaluating and reporting student progress are each considered briefly (DT)

2104 ED 115 512 Overview and Analysis of School Mathematics,

Grades K-12. interence Board of the Stathematical Sciences,

Washington, D.C. National Advisory Committee on Mathematical Education poins. Agency. National Science Foundation.

Speins Agency N Washington, D.C.

Washinkon, D.S. Pub Date 178 Note 172p Available from Conference Board of the Math-ematical Sciences, 2000 Pennsylvania Avenue N.W. Sorte S22, Washington, D.C. 20037 (Striple more or of this about reduced). comes as miable unon requests

P. Type Reports Research (143)

EDRS Price - MF01 PC07 Plus Postage.

Descriptors \*Advisory Committees, \*Curriculum, and kattonal Change Educational Planning, Flomentary [Score larve ducation, Evaluation, \*In-struction, \*Mathematics Education, \*Reports Identifiers Conference Board of the Mathematical Sciences, ACOME, \*National Advisory Com-

mittee on Math Education

By appointment of the Conference Board of the Mathematical Sciences, a committee wire estabashed to investigate the status of mathematicas education at the pre-college levels. Drawing on the data gathered and published by the National Assessment of Educational Progress, the National Center for Educational Statistics' survey of course inferings and enrellments at public secondary schools, and the American Institutes for Research's survey concerning compaining activities in secondary educa-tion, as well as the committee's own studies of statewide objective and testing programs and of elementary school curricula and instruction, the report addresses a broad spectrum of assues. Chapters of the report are devoted to a summary and analysis of the correction reforms formg 1988-1978, adentation to hand discussion of current curve, lar emphases, and year of alternative members and setuations and

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It at least the only the problem of their and a mathematical nationals. The math student, the math teacher, and the mach problem are discussed. The math student may have detects, letiviencies, disruptions in four differences in the cognitive abilities of cod to perform a math matical problem. The off testine may tend to be less within and less so the sponseye than other teachers. Main teach creams thay have internalized mathematical reasons has and its accompanying numerical coding and total in so that they are hardly understand the trim three state of most students and many adorts and thus students tend not to question, but onste of accept math as a closed system. The math worst problem poses a harrier to learning because or the new words and notations and the complex languages and terse sentences. An approach to the e-problems which involves the student, the leacher, and the problem is the R.Q procedule, a variation of the ReQuest procedure developed by Manzo, The R. Q. procedure is a questioning strategy carried out be tween teacher and student in which they both read each sentence in the problem and then ask each other questions, ibout the problem men the stadent is ready to solve the problem (MKM).

2106 FD 106 124

Cooney, Thomas J. And Others. Protocol Materials in Mathematics Education: Setantion of Concepts, Report No. 1.

National Center for the Development of Islaming Materials in Teacher Education, Bloomington,

Spons Agency National Center for Improvement of Educational Systems (DHEW OF) Washing-ton, D. C.

Pub Dice Feb 78

Note: 48p Pah Type: Reports - Research (143)

EDRS Price - MF01 PC02 Plus Postage.
Descriptors \*Comerci Teaching Curriculum

Development, Educational Theories, \*Uner state Reviews, \*Mathematical Concepts, \*Mathematiics Education, Teacher Education, \*Teaching Methods

The basic premise of this report is that in audition an amowledge of soffeet matter and psychological principles, teachers should have the ability to think about the subject matter and to perform the logical operations used in mirripulating it. The basic objects of mathematics instruction are concepts and principies, and, therefore, the towns of this report is the definition of moves and strategies in operating on and teaching these. The concept of a concept discussed, and a taxonomy of concepts defined Eight types it connotative moves and six types of denotarise moves are defined and exemplified strategies requences of moves, for teaching concepts are then discussed. The nature and importance of principles in mathematics are discussed. It see etal methods of characterizing principles are copared. Six basic moves for the teaching of principles ire identified and invocated with key expressions Rationale for selecting concepts and principles is discussed (SD)



2107 PD 101 753 Criteria for Instructional Materials Selection 1975 Adoption.

Florida State Dept of Education Tallabassee Pub Date

Note 19p

Publispe Reference Materials Bibliographies (13.0)

EDRS Price - MF01 PC01 Plus Postage.

Descriptors: Algebra, English, \*Evaluation Criteria, Geometry, \*Guidelines, High Schools, \*In-Structional Materials, Junior High Schools, Literature, Mathematics, \*Media Selection, Niddie Schools, Reading, Reading Materials, Reading Material Selection, Secondary Education, \*Textbook Selection, Trigonometry

Identifiers \*Florida, Mathematical Analysis

Prepared for use or middle and secondary school teachers and administrators, this document provides guidelines for the selection of instructional materials to be used in the classroom. After presentation of general criteria for the selection of instrucfromal materials in all subjects, selection criteria are given for the English language arts and for mathematics. Specifically, in the English language aric field, individual criteria are given for literature in in dille junior-senior high school and for reading in grades 7-12. Included in the criteria for mathematics materials are algebra I and II, analytic geometry, miroductory mathematical analysis, mathematics V. and trigonometry (DGC)

2108

ED 038 276

Rasmusien, Lore

Creating a Mathematics Laboratory Environment in the Elementary School, Part 1: The Classroom Withou. Special Equipment.

Philadelph School District, Pa

Pub Date 68 Note 27p

EDRS Price - MF01 PC02 Plus Postage.
Descriptors \*Creatise Activities Curriculum Development, \*Discovery Learning, \*Elementary School Mathematics, \*Instruction, \*Laboratory Techniques, Anthematical Applications, Mathematical Concepts, Mathematics

This booklet was written for elementary school teacher, who want suggestions of the type of activities suited to a mathematics laboratory. The emphasix is not that of a thorough survey of the available activities, Instead, the author uses selected examples to describe the spirit of a laboratory environment. The suggestions include a angements of groups, drawing and reading maps, applications of ratio to time problems, graphing student characteristics and finding mathematical ideas of our alphabet (RN)

2109

ED 032 231

Chattee, Everett.

Guidelines for the Use of Basic and Supplementary Mathematics Textbooks in the Elementary Schools.

Los Angeles City Schools, Calif. Div. of marrietional Planning and Services

Pub Date 66

Note 54p.

EDRS Price - MF01 PC03 Plus Postage.

Descriptors "Assignments, "Elementary School Machematics "Instructional Materials, Skells, Supplementary Reading Materials, Teacher Effeetiveness, \*Teaching Guides, \*Textbook Content, Textbooks

Identifiers Course of Study for Elementary Schools, Greater Cleveland Mathematics Program, Los Angeles City Schools CA, Modern Arithmetic Through Discovery

This booklet was prepared to argist teachers of elementary school mathematics in the effective use of the basic and supplementary state-adopted textbooks. Within each grade level, four categories of haste skills and understandings were developed These were (1) number systems and numeration systems, (2) fundamental operations, (3) measuremen', and (4) geometry. In some grade levels, geometry was nitted due to lack of textbook materials. Prerequisites to the skills and understandings are listed, as well as the pages where those topics would be introduced, reviewed, and or extended. The topics listed represent only a minimum program in elementary school muthematics (RR)

2124 FD 125 - 16

Simpson, F. Morgan, Comp.

Examples of Audio-Tutorial Programs in Mathemptics.

Pub Date Sole 210

Put Type Reference Materials hibliographies 1311

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Audio Equipment, \*Audiosisual Instruction, Elementary Secondary Education. Higher Education, \*Individualized Instruction, Instruction, \*Instructional Materials, \*Mathematics Education, \*Tutorial Programs, Tutoring Identifiers \*Audio Tutorial Instruction

This document lists 115 commercially available sets of audiotapes 25 on deal with topics in mathematics. Some of the tapes listed were designed to accompany film strips, others are associated with workbooks, study guides, or other instructional materials. Each listing provides the name of the tape, a level code, a brief description, and the name of the publisher. Six level codes are used to indicate primary, intermediate, junior high school, senior high school, adult, or college. A list of publishers addresses is provided (ND).



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Probability for Primary Grades, Teacher's Conmentary. Revised Edition.

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2205 Experimental Teaching Unit: Fifth Grade Mathematics.

For West Lander Udicational Research and Devel orment, San Francisco, Calif. P.5 Date: 74

Note: 164p., But related documents see NE 024 846. Contains marginal legibiors in Tables and Graphs As a liber from . For West Laboratory for Educatom Research & Development, Teacher F. Lindson, Disc., 1855, Folson, Street, San Francis, California, 94 193 (no price subred).

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Blakenser David W. And Other Probability for Intermediate Grades, Teacher's

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Sports Agency National Science Foundaries Washington, Dic. Pub Date: 88

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Introduction to Probability, Part 2 - Special Topics assisted Lext. Revised Edition.

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Introduction to Probability, Part 1 - Basic Con-

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Activities in Flementary Probability, Monograph No. 9

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Suggestions for Teaching Mathematics Using Laboratory Approaches, 6. Probability, Experimental Edition.

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EDRS Price - MF01 PC02 Plus Postage.

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Descriptions \*blementary 8.5 cc. Mathematics, \*Instruction, \*instruction Mathematics \*Mathematics emarica \*Probability

Identifiers Combridge Conference on School Mathematics MA

hese matchias were written with the aim of re-Beet had the thinking of the Cambridge Conference



so School Mathematics is USMF regarding the grane and observes on his which mathematical They consent a practical response to a proposal by COM that some comments of probability be offer. fixed or the elementary grades. These materials a toyother wildren with a carriery of activities inclosa probability and statistics in a laboratory serting Opportunities are provided for abildren to goos experform on in currents to period solutions. They forgotic exportantials recording data, graphing experimently tion, teresimining mathematical models to chance courts and companies. The experiences described this report incomended to give students the opto turious to become familiar, by direct experiment with impostant probability concepts before the large The staffed at a more soph speaked level. Not is made to hardeops, the to pringle along body of game this a medical RPs.

2218

10000 30

Milar La

Probability Lessons at Hancock School Lexington; Cambridge Conference on School Math empries Feasibility Study No. 41

Committee Confirming on School Afgreen gas Newson Mars

Part December 

## FDRS Price - MF01 Plus Postage, Pt. Not. Available ble from EDRS

Selection of Antiberior \*Farmentary S Mathematics, Orado 4, smalle 8, Charles 6, struction Instructional Materials, "Physiable is Ring of a Materials.

Merithers Cambridge Conterence on School Mathematics, MA, Massachusetts,

Inase materials were written with the temocrae-Tourish the thinking of Cambridge Conference on 8-700 Mathematics (CCSM) regarding the goals and objectives to eschool mathematics. Presented its to this for teaching 23 probability lessons in the emeritars grastes of Hancock School, Lexington Massachusette. The discovery approach was acidred by the teacher to involve students in the classtown discussions. Tossing a count follow a dieformer a thumback, and graphing are mediums used in the classicion by students before responding to less one presented by the teacher. The less on 116 Not call day is listed. Transcripts of teacher old student statements are included for several leswas "Not is awable in hard copy, fac to marginal 22 hours of original document[] (RP)

ED 033 022

terraman 3 f. Blownke W. R. Probability and Statistics: A Prelude.

M. Denne. Dougras Astronautics Co., Huntrigger, Beach Cald Western Dis-

Pub Date May 68 N. te 105

# EDRS Price - MF01 PC02 Plus Postage.

Descriptors Inservice Teacher Education \*15 structional Materials, \*Probability, \*Secondary School Mathematics, "Statistics, Teacher Educa-11110

Fri ham, is and statistics have become indispensanic to a critific technical, and management progress. They serve as essential dialects of matternatics, the classical language of science, and as instruments necessary for intelligent generation and analysis of information. A preside to probabiity and statistics is presented by examination of the may stand for lepts that form their foundation. The nnet written discussion of these concepts in outline tiam is augmented by examples and a hibliography The outline forms the basis for both a series of legtures to deventh grade students in a Mathematics Summer Homory Program, and a series of sectures to secondary mathematics teachers in a workshop on probability and statistics (RP)



# PROBLEM SOLVING

2390

ED 178 354

Introduction to the LCMP Mathematics Problem-Solving Programs.

Lane County Education Service District, Eygene,

Spons Agency Bureau of Elementary and Second-ary Education (DPEW/OE), Washington, D.C. Pub Date 79

Since 20p

Schaaf, Oscar F

Pub Type Reports - Descriptive (141)

EDRS Price - MF01 PC01 Plus Postage.

Descriptors \*Elementary School Mathematics, Elementary Secondary Education, \*Experimental Programs, Inservice Education, \*Mathematics Curriculum, \*Mathematics Instruction, \*Problem Solvin Secondary School Mathematics, Teaching Girder

Identificate Oregon

Presented is a discussion on problem solving in general and a description of a specific program, the Lane County Mathematics Project, to teach prob-lem solving. Topics considered include. (1) Why teach problem solving; (2) Can problem solving be taught. (3) What are problem-solving skills: (4) What are some examples of problem-solving strategies: (5) How will these problem solving materials fit into the regular mathematics program, (6) What in-service education is planned for teachers who use the packets, and (7) How will the programs be evaluated? A content outline for a fourth-grade packet is also presented. (MK)

2301 ED 171 528 Problem Solving, Revised Edition,

New York State Education Dept., Albany Bureau of General Education Curriculum Development.; State Univ. of New York, Albany Pub Date - Dec 78

Pun Date Dec 8

Note 36p

Pub Type Guides - Classroom - Teacher (052)

EDRS Price - MF61, PC02 Plus Postage,

Descriptors Elementary Education, \*Elementary School Mathematics, \*Instruction, \*Instructional Materials, \*Learning Activities, \*Problem Society, \*Teaching Methods ing, \*Teaching Methods

This pamphlet is designed to give help in developing problem solving by examples of techniques at grade levels one through six. A number of illustrations are presented of problems that are typical of the types appropriate at each grade level. For each problem, a suggestion of a solution appears with alternative methods suggested in several cases. Em-

phasis is given to the use of number sentences. Eight steps in problem solving are outlined for the initial development of problem-solving ability. (MP)

ED 171 527

Sulloun, John And Others Creative Problem Solving.

New York State Education Dept., Albany, Bureau New York State Education Dept., Albany, Bureau of General Education Curriculum Development.; State Univ. of New York, Albany.

Pub Date. [78]
Note. 49p.; Contains occasional light type.
Pub Type. Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC02 Plus Postage.
Descriptors. \*\*Creative Thinking, Elementary Secondary Education Investigation Proceedings Foliagation.

Pescriptors - Creative Thinking, Elementary Se-condary Education, Inservice Teacher Education, \*Instructional Materials, \*Mathematics Educa-tion, \*Pattern Recognition, Problem Sets, \*Prob-lem Solving, \*Teaching Methods dentifiers - \*New York An overview of a variety of interesting teaching Identifiers

techniques is given to assist school personnel in strengthening their overall mathematics programs in the first eight grades. The problem-solving approaches recomment if are so designed that they should be useful in every subject. The materialscould also be used as a basis for teacher in-service training. Topics covered include an enlarged view of problem solving, how to create problems, organizing facts to perceive patterns, and problem sets related to a variety of topics (MP)

ED 168 848 Mathematical Problem Solving Project - Using

Indiana Univ., Bloomington, Mathematics Education Development Center

Spons Agency National Science Foundation, Washington, DC Pub Date - May 77

Grant NSF-PES-74-15045

163p., For related documents, see SE 026

911-934

Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF01 PC07 Plus Postage.

Descriptors Elementary Education, \*Elementary School Mathematics, \*Instruction, \*Mathematics Education, \*Problem Sets, \*Problem Solving, \*Teaching Methods Identifiers \*Mathematical Problem Solving Problem S

This problem deck contains over 150 problems related to the module "Using Tables to Solve Problems "The problems are presented at fine hands." The problems are presented at five levels of difficulty and contain four basic types of twodimensional tables: (1) constant sum; (2) constant differences; (3) constant quotient or ratio, and (4) constant product. (MP)

2304 ED 168 847 Mathematical Problem Solving Project - Using Tables to Scive Problems.

Indiana Univ. Bloomington. Mathematics Education Development Center, University of Northern Iowa, Cedar Falls.

Sport: Agency - Sittonal Science Foundation, Washington, D.C.

Pub Date - 76 Grant NSF-PES-74-15045

Note 96p.; For related documents, see SE 026 411-934; Contains colored pages which may not reproduce well

Pub Type Guides - Classroom - Teacher (052)
EDRS Price - MF01/PC04 Plus Postage.
Descriptors - \*Curriculum Guides, Elementary
Education, \*Elementary School Mathematics,
\*Instruction, \*Learning Activities, \*Mathematics
Education, Problem Sets, \*Problem Solving,
Targibon Mathematics Teaching Methods

Identifiers \*\*Mathematical Problem Solving Pro-

This teaching guide presents six lessons on using tables to solve problems. For each lesson, the guide gives the purpose, the rationales, materials, and detailed teaching procedures. The six lessons involve making a table, completing a table, using tables to solve problems (lessons 3 and 4), reading tables, and solving problems. Each lesson opens with a cartoon drawing that places the student in a school environ-ment. This is followed by three or four problem situations and a page extending the experiences within the lesson. Optional activities are suggested (MP)

2305 ED 168 845 Mathematical Problem Solving Project - Using Guesses.

Indiana Univ., Bloomington, Mathematics Education Development Center

Spons Agency National Science Foundation, Washington, D.C. Pub Date--May 77 Grant--NSF-PES-74-15045

Note-131p.; For related documents, see SE 026 911-934

Pub Type - Guides - Classroom - Teacher (052)

EDRS Price - MF01/PC06 Plus Postage.

Descriptors— \*Computation, Diagrams, Elementary Education, \*Elementary School Mathematics, \*Mathematics Education, Measurement, \*Postage.

\*Problem Sets, \*Problem Solving Identifiers—\*Estimation (Mathematics), \*Mathematical Problem Solving Project

This problem deck is designed for use after having covered the material in an accompanying skills booklet. It provides for further use of the skills with problems involving four skills at five levels of difficulty. The four skills involve using guesses as a strategy in solving computation problems, two-step problems, situations that require diagrams, and measurement problems using estimation. Over 125 problems are presented. (MP)

2306 ED 168 844 Mathematical Problem Solving Project - Using Guesses to Solve Problems.

Indiana Univ., Bloomington, Mathematics Education Development Center., University of North-

ern Iowa, Cedar Falls.

Spons Agency National Science Foundation,
Washington, D.C.

Pub Date 76 Grant NSF-PES-74-15045

Note 67p., For related documents, see SE 026 911-934. Colored pages may not reproduce well Pub Type Guides - Classroom - Teacher (052)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors \*Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Mathematics Education, \*M tion, \*Problem Sets, \*Problem Solving

Identifiers \*Mathematical Problem Solving Pro-

This teacher's guide contains instructions for the use of a booklet designed to teach problem solving through guessing. For each lesson the purpose, an overview, and detailed teaching procedures are presented. The five lessons are (1) using guesses and computation to solve problems, (2) using guesses to solve two-step problems, (3) using guesses and diagrams to solve problems, (4) using estimation to solve measurement problems, and (5) using guesses to solve problems. (MP)

2307 ED 168 842 Mathematical Problem Solving Project - Using Lists.

Indiana Univ., Bloomington, Mathematics Education Development Center

Spons Agency N Washington, D.C. National Science Foundation,

Pub Date May 77 Grant NSF-PE\*-74-15045

Note 62p, For related documents, see SE 026 911-934

Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF01 PC03 Plus Postage. Descriptors Elementary Education, "Elementary School Mathematics, "Instructional Materials, "Intermediate Grades, "Mathematics Education, \*Problem Sets. \*Problem Solving Identifiers \*Mathematical Problem Solving Pro-

A set of 58 problems that may be solved by using lists is presented. This set is part of the Mathematical Problem Solving Project. The problems are coded for three levels of difficulty and are designed for students in the intermediate grades. Answers are provided. (MP)

2308 Mathematical Problem Solving Project - Organizing Lists.

Indiana Univ., Bloomington, Mathematics Education Development Center, Oakland County Schools, Pontiac, Mich.

Spons Agency National Science Foundation, Washington, D.C Pub Date 77

NSF-PES-74-15045 Grant

Note 90p.; For related documents, see SE 026 913-934; Colored pages may not reproduce well

Pub Type Guides - Class\*\*som - Teacher (052)
EDRS Price - MF01 PC04 Plus Postage.
Descriptors \*Curriculum Guides, Elementary
Education, \*Elementary School Mathematics,
\*Instructional Materials, \*Mathematics Education, Problem Sets, \*Problem Solving, Transparencies, \*Worksheets Identifiers \*Mathematical Problem Solving Pro-

icct

teacher's guide contains instructional material for use in a module designed to help students learn to use a list as one way to organize information. Detailed teaching procedures are given for each of eight lessons as well as objectives, student pages and transparencies. An answer key is provided. The lessons address the following goals-(1) reading and organizing lists, (2) making headings and entries for lists; (3) solving problems where the list is the solution and problems where the solution is contained in the list; (4) performing calcula-tions on list entries to solve; (5) solving problems tion; and (6) solving problems using three diagrams. (MP) when the list suggests relationships that help solu-

ED 168 837 Mathematical Problem Solving Project Technical Report II: Instructional Materials. Part D: Learning to Solve Problems by Solving Prob-lems, Appendices A and B.

Indiana Univ., Bloomington, Mathematics Education Development Center

Spons Agency National Science Foundation, Washington, D.C. Pub Date May 77 Grant NSF-PES-74-15045 Isote 45p; For related documents, see SE 026

911-934; Contains light and broken type

Pub Type Reports - Research (143)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Concept Formation, \*Edicational Research, Elementary Eduction, \*Elementary School Mathematics, Evaluation Methods, \*Instructional Materials, \*Mathematics Education, \*Problem Sets, \*Problem Solving Identifier -\*Mathematical Problem Solving Pro-

Instructional materials used in two pilot studies are presented. Appendix A contains components of the problem-solving bulletin board. Eighteen problems are stated along with suggestions for solving each problem. Problems 1-10 doctors questions extending the original problem. Teacher answer sheets are given for problems 4-18. Appendix B contains

observation sheets and interview forms used by the researchers. (MP)

a Bianc. John F

Mathematical Problem Solving Project Technical Report I: Documents Related to a Problem-Solving Model, Part C: You Can Teach Problem Solving, Final Report.

Indiana Univ. Bloomington. Mathematics Educa-tion Development Center

Spons Agency National Science Foundation.
Weshington, D.C.
Pub Date May 77
Grant NSF-PES-74-15045
Note Top: For related documents, see SE 026-031-0317

911.934

9th Type Reports - Research (143)
EDRS Price - MF01 PC01 Plus Postage.
Descriptors Elementary Education, "Elementary School Mathematics, "Instruction, "Learning Activities, "Mathematics Education, "Problem Solving, "Teaching Methods Identifiers "Mathematical Problem Solving Pro-

Four procedures are stated which are inherent in problem solving: (1) understanding the problem; (2) planning to solve the problem. (3) solving the problem, and (4) reviewing the problem and the solution. Each of the four procedures is illustrated using probiems appropriate for elementary school children. These illustrations are accompanied by some guidelines and instructional moves which can be used to help children in their problem solving. Two differ-ent problems are used: (1) a typical textbook problem, and (2) a process problem, (MP)

ED 162 875

ED 168 835

Dilworth, R. P. And Others

Studies in Mathematics, Volume XVIII: Puzzle Problems and Games Project. Final Report.

Stanford Univ. Calif. School Mathematics Study

George Agency National Science Foundation, Washington, D.C.

Note: 58

Note: 51555

Note 218p. For related documents, see SE 025 371-374 and ED 143 544-557; Not available in hard copy due to marginal legibility of original document

Pub Type Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

escriptors Curriculum, \*Discovery Learning,
\*Elementary School Mathematics, Elementary
Secondary Education, \*Games, Instruction, \*Instructional Materials, Mathematics, Education,
\*Secondary School Mathematics, \*Teaching Descriptors -Curriculum, Guides

Identifiers School Mathematics Study Group

This is a self-contained manual for use by teachers in preparation for classroom presentations. One of the goals of the report is to show how games and puzzles can provide effective means for developing mathematical understanding and skills. The authors indicate that this type of activity is well adapted for discovery teaching techniques. The report is organized into two main parts. The first part contains experimental units that were tested in the classroom. The topics in this part include: (1) nim-type games, (2) polyominoes, (3) symmetry; (4) a counting machine; (5) finding the greatest common divisor. (6) linear function games; and (7) games with addition tables. The second part consists of the report of a project to compile a list of games and puzzles appropriate for use in the mathematics classroom. Twenty-seven papers contain fin addition to the above list) activities such as: (1) magic squares, (2) Fibonacci problems; (3) geometric puzzies, (4) numerical oddities, and (5) powers and primes (MP)

FD 162 872 Po'ya. George Studies in Mathematics, Volume III: Mathemati-

cal Methods in Science. Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation.

Spons Agency National Science Foundation. Washington, D.C. Pub Date - 63
Note 249p.; For related documents, see SE 025
371-375 and ED 143-544-557, Contains occa-

sional light type

Pub Type - Guides - General (050)

EDRS Price - MF01/PC10 Plus Postage.

Descriptors - \*Course Descriptions, \*Curriculum, \*Higher Education, \*Instruction, \*Mathematical Applications, Mathematics, Mathematics Educa-tion, "Physical Sciences, Science History, Sciences, Secondary Education, "Secondary School Mathematics, Teacher Education

Identifiers School Mathematics Study Group This is a course of lectures given by George Polya at Stanford University to teachers, or prospective teachers, of mathematics and science. One of the essential tendencies of the course is to posit to one history of certain elementary parts of science as a source of efficient teaching in the classroom. The fectures include: (1) very simple physical or pre-physical problems that could be discussed at the high school level; (2) the relation of mathematics to science and of science to mathematics, and (3) elementary calculus. Chapter topics include. (1) history of astrono ay-measurement and successive approximation; (2) history of mechanics; (3) history of dynamics; (4) physical reasoning in mathematics: and (5) differential equations and their use in science. (MP)



# TESTING

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2400 ED 183 388

Selected Supplemental Mathematics Exercises. National Assessment of Educational Progress. Education Commission of the States, Denver, Colo National Assessment of Educational Progress.

Pub Date Oct

Pub Date Oct 77
Note 199p.
Pub Type Tests Questionnaires (160) - Numerical Quantifative Data (110)
EDRS Price - MF01/P '08 Plus Postage.
Descriptors Computation, Definitions, \*Educational Assessment, Elementary Secondary Education, Geometry, Grapius, Mathematical Concepts, \*Mathematics Education, Measurement, Number Concepts, \*Problem Sets, Problem Solving, Statistics, Tables (Pata), Test Construction, \*Test Items

Identifiers \*National Assessment of Educational

Progress
The National Assessment of Educational Frogress (NAEP) administered the selected supplemental mathematics exercises to 12-year-old students during October and November 1975 and to 17-year-old stucents during March and April 1976. This assessment represents a specially modified supplement to 1972-73 full-scale mathematics assessment and was designed to determine whether 1.3- and 10-year-old students can successfully cope with basic computations, operations, simple graphs and charts, bols, situation (word) problems, etc. Of the 88 exercise parts administered to 13-year-olds, 61 have been released, and of the 83 exercise parts adminis-tered to 17-year-old students, 68 have been released. Only the released exercises are presented in this volume. Each released exercise or exercise part is accompanied by a documentation page that identifies the exercise content and objective and its National Assessment identification number. The documentation page also gives the exercise remase number and various administrative information The data table at the bottom of each documentation puge or on the following page presents the 1975-76 results for the correct answer to the exercise part shown in this volume. (Author, MK)

2401 ED 182 174

Euhl: Studt

Mathematical Understanding: Selected Results from the Second Assessment of Mathematics. Education Commission of the States, Denser, Colo

National Assessment of Educational Progress National Assessment of Educational Progress
Spons Agency National Inst. of Education
(DHEW), Washington, D.C.
Report No. -NAEP-09-MA-04
Pub Date Dec. 79
Contract OEC-0-74-0506
Note 53pi, For related documents, see ED 176
964-965

Available from Superintendent of Documents, Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (no price quoted); NAEP, 1860 Lincoln Street, Denver, CO 80295 (\$3.85).

Pub Type: Reports - Research (143).

EDRS Price - MF01, PC03 Plus Postage.

Descriptors "Academic Ability, "Achievement, "Educational Assessment, "Educational Re-

Educational Research, Elementary Secondary Education, Evaluation, Geometry, Mathematical Concepts, "Mathematics Education, Measurement, "National Surveys, Number Concepts, "Student Chancilla Concepts, "Student Chancilla Concepts," Student Chancilla Concepts, "Student Chancilla racteristics. \*National Assessment of Educational

Progress

This is one of a series of reports summarizing the results of the second mathematics assessment conducted by the National Assessment of Educational Progress (NAFP). Nine, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes; knowledge, skill, understanding, and application. This report describes performance on the understanding items. Included are results for understanding of numbers and numeration, variables and relationships, geometry, measurement, and various other topics. The report also contains group results, agelevel comparisons and observations on the results The observations, consisting of a historical perspective, implications of the results, and recommendations, were made by a panel of people active in the field of mathematics education. Among the panel's five recommendations were (1) An expanded definition of what is "basic" in mathematics is crucial to foster students' ability to cope with different types of mathematical tasks, (2) There is a need to pro-

mote understanding of concepts and to link skill development to problem-solving activities; and (3) There is a need for more consistent and comprehensive teacher education in the mathematics area. (MK)

ED 177 018 2402

Engelhardi, Jon M. Wiebe, James H.
Measuring Diagnostic Remedial Competence in
Teaching Elementary School Mathematics. [78]

Note 25p. Pub Type

Tests Questionnaires (160)

FDRS Price - MF01 PC01 Plus Postage.
Descriptors - \*Clinic Personnel (School), Educational Diagnosis, Elementary Education, \*Elementary School Mathematics, \*Elementary School Teachers, \*Measurement Instruments. Remedial Instruction, Remedial Mathematics, \*Special Education Teachers, Teacher Behavior, Teacher Education, \*Teacher Evaluation

Presented is an instrument that can be used to determine the competence of regular classroom teachers, special-education teachers, or climicians in the area of diagnosis and remedial instruction in elementary mathematics. The instrument itself, an answer form, background and theoretical development of the instrument, reliability and validity data, scoring details, and a sample demonstrating the techniques for scoring are included. (Author, MK)

ED 177 011

Ward, Barbara

Changes in Mathemalical Achievement, 1973-78: Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo National Assessment of Educational Progress Spons Agency National Inst of Educati (DHEW), Washington, D.C of Education

Report No. NAEP-09- dA-01 Pub Date - Aug 79 Contract OEC-0-74-0506

Available from National Assessment of Educa-nonal Progress, 1860 Lincoln St., Suite 700, Den-ver, Colorado 80295 (\$1.75)

Pub Type - Reports - Evaluative (142) - Research (143)

- Research (143)
EDIS Price - MF01 PC02 Plus Postage.
Descriptors "Academic Achievement, "Educational Assessment, "Educational Change, "Educational Assessment, "Elementary School Mathematics, Elementary Secondary Education, hyaluation, "Mathematics Education, "National Competency Tests, National Surveys, Secondary School Mathematics Testing Proceedings School Mathematics, Testing Identifiers Mathematical Assessment

The National Assessment of Educational Progress (NAEP) has completed two surveys of mathematics achievement of 9-, 13-, and 17-year-old students. The first was conducted during the 1972-73 school year and the second five years later, during 1977-78. This report describes changes in students' performs. mance between the assessments. The overali results indicate some decline in mathematics achievement Changes in performance differed by type of item and by age group. Declines became more apparent for older students. The results for whole number computation were generally satisfactory; however, results for problem solving were generally low and had declined. The assessment indicated a significant decline on mathematics understanding items only for 17-year-olds, while all three age groups declined on mathematics applications items. A panel chosen to intepret the results warned against placing too much emplasis on overall results and stated that changes for hopulation groups or specific item types provide more meaningful information. The panel made seven recommendations for school mathe harres (MR)

24114 ED 176 965

Wurd, Barbara

Mathematical Applications: Selected Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo National Assessment of Educational Progress Spons Agency National Inst. of Education (DHEW), Washington, D.C. Report No. NAEP-09-MA-03
Pub Date: Aug 79
Contract OEC-0-74-0506

Note 66p. For related document, see SE 028 819 Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (no price quoted), and NAEP, 1860

Lincoln St., Denver, CO 80295 (\$4.50)

Pub Type Reports - Research (143)
EDRS Price - MF01 PC03 Plus Postage.
Descriptors "Academic Ability, "Achieveme ""ducational Assessment, Educational Research Flementary Education, Evaluation, Mathematical Applications, Mathematical Concepts, \*Mathematics Education, "National Surveys, "Problem Solving, Secondary Education, "Student Characteristics

Identifiers \*National Assessment of Educational Progress

This is one of a series of reports summarizing the results of the second mathematics assessment conducted by the National Assessment of Educational Progress (NAFP). Nine, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes (knowledge, skill, understanding and application). This report describes performance on application items. The report includes results for one-step word problems, problems about consumer situations, multistep word problems, non-routine problems, and problems involving geometry, measurement, probability and statistics, graphs and tables, or reasoning making judgments. The report also includes group results, age level comparisons and observations on the results. The observations, consisting of interpretation, consideration of implications and recommendations, were made by a panel of persons active in the field. The panel feit that the results implied that problem solving is a major area of concern in mathematics education. Among the panel's seven recommendations were an expanded definition of what is "basic" modification of textbooks to include a greater variety of problem-solving tasks and more emphasis on the teaching of problem solving (PK)

ED 176 964

Kahl, Stuart

Mathematical Knowledge and Skills: Selected Results from the Second Assessment of Mathematics.

Education Commission of the States, Denver, Colo-National Assessment of Educational Progress Spons Agency National Inst of Education (DHEW), Washington, D.C.
Report No. SAEP-09-MA-02
Pub Date Aug 79
Contract OEC-0-74-0506
Note Sign Englished.

83p . For related document, see SE 0.-820Note 83p. For related document, see St. 0. - 820 Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.s. 20402 (no price quoted), and NAEP, 1860 Lincoln St., Denver, CO 86295 (84.65) Pub Type Reports - Research (14.3) EDRS Price - MF01 PC04 Plus Postage. Descriptors \*Academic Ability, \*Achievement, \*Part St. III. Computation \*Educational Academic

\*Basic Skills, Computation, \*Educational Assessment, Educational Research, Elementary Educa-tion, Evaluation, Mathematical Concepts, \*Mathematics Education, \*National Surveys, Secondary Education, \*Student Characteristics entifiers \*National Assessment of Educational Identifiers Progress

This is one of a series of reports summarizing the results of the second mathematics assessment con-ducted by the National Assessment of Educational Progress (NAEP). Ninc, 13- and 17-year-olds were assessed during the 1977-78 school year. The assessment measured achievement in various content areas at four levels of cognitive processes (know cuke, skill, understanding, and application). This teport describes performance on knowledge and skill items. The report includes results for mathematical knowledge in the areas of numbers and numeration. geometry and measurement. The results for skills are divided into computational skills (computation with whole numbers, tractions, decimals, integers, percent, and conversion between fractional form) and other mathematical skills (measurement, reading graphs and tables, geometric manipulations, algebrais manipulations and estimation skills). The report also includes group results, age level comparisons and observations on the results. The observations, consisting of interpretation, consideration of implications, at 1 recommendations, were made by a panel of persons active in the field. It was the judgment of this panel that write performance is generally satisfactory for knowledge and whole number computational skills, achievement in many other areas is below desired levels. Among the five recommendations is that the remedy for areas in which performance is not satisfactors should not be to expand rote drill and mechanistic teaching appro-



aches but should strive to promote understanding (PK)

2406 ED 171 586

Henderson, George L. And Others

Wisconsin Mathematics Test, Grades 7 and 8. Wisconsin State Dept. of Public Instruction, Madison Div of Instructional Services

Pub Date [78]

Note [67], Contains occasional light and broken

Type
Pub Type - Tests Questionnaires (160)
55500 PC03 Plus Postaj

EDRS Price - MF04 PC03 Plus Postage.
Descriptors "Achievement Tests, "Criterion Referenced Tests, "Diagnostic Tests, Grade 7. Grade S. Secondary Education, "Secondary School Mathematics, "Tests identifiers "Wisconsin

This mathematics achievement test for grades? and 8 is based on objectives identified in "Gindelines to Mathematics, 6-8." The test can be used as a criterion-referenced instrument, a diagnostic instrument, or an achievement histrament. Each test stem is cross-referenced to the corresponding site ent behavioral objective in the above publication This cross-referencing makes it possible to analyze strengths and weaknesses through item analysis comparison with objectives. Technical information included consists of fest rehability and descriptive

2407

ED 171 045

Simbara, Jaalla P

statistics (MP)

Criterion-Referenced Assessment of Basic Compeencies.

Pub. Date - Apr. 79 Note - 15p. Paper presented at the Annual Internaional Convention, The Council for Exceptional Children (57th, Dullas, Texas, April 22-27, 1079, Session TH-97)

Pub Type Tests Questionnaires (160) Spec-ches Meeting Papers (150) EDRS Price - MF01 PC01 Plus Postage. Descriptors \*Basic Skills, \*Culture Fair Tests, \*Educational Diagnosis, \*Evaluation Methods, \*Minority Groups, \*Test Bias Identifiers \*Assessment of Basic Competencies

The paper discusses a new battery of tests, the Assessment of Basic Competencies, designed for fair assessment of the latent abilities of minority group children. It is explained that the tests provide diagnostic assessment in several domains of competence that are considered important for school learning. The three domains, information processing, language, and mathematics, are said to be covered by II tests which measure specific enabling shifts, weaknesses and strengths are identified, suggestions are made for educational intervention, and lists of selected instructional resources are preserred with annotations. The author asserts that low test performance does not reflect bias; it reflects gicater educational need in domains significant for accusting school learning. (Author CL)

ED 109 188

Petrosko, Joseph M. Hufano, Linda

An Assessment of the Quality of High School Mathematics Tests. Pub Date [Apr 75]

Note: 20p. Paper presented at the Annual Meeting of the National Council on Measurement in identition (Washington, D. C., March 31-April 2005). 1975)

Pub Type Reports - Research (143) EDRS Price - MF01 PC01 Plus Postage.

Descriptors Algebra. Comparative Analysis, \*E-alianton, \*Evaluation Criteria, Geometry, High Schools, \*Mathematics, \*Secondary Education \*Standardized Tests, Test Construction, Test Reliability, Tests, Test Validity

An assessment was made of the psychometric and educational quality of all high school level tests of general mathematics, applied mathematics, algebra and geometry. The study was part of a large-scale project involving evaluations of all standardized secondary school tests available in the United States Assessments revealed most tests to be low in many types of validity and reliability. Fests of general mathematics, which included arithmetic, fared the best across 39 criteria of test quality. Test developers are not meeting many basic standards of test quality in constructing mathematics tests. (Author)

241:4 Sundam, Martine N

Evaluation in the Mathematics Classroom: From What and Why to How and Where.

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.

Pub Date | Jun 74 Note | 70p | Mathematics Education Reports

Available from Ohio State University, Center for Science and Mathematics Education, 244 Arps Hall, Columbus, Ohio 43210.

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Annetated Bibliographies, Attitudes, Anneated Biologiaphies, Anneated Biologiaphies, Anneated Biologiaphies, Anneated Biologiaphies, Anneated Mathematics, \*Evaluation, \*Fivaluation Methods, \*Instruction, \*Mathematics, \*Urst Construction, ary School Mathematics, \*Trst Construction,

This document discusses the role and the scope of evaluation in the mathematics classroom. The scope or mathematics objectives to be evaluated, the scope of evaluation purposes in the mathematics classroom, and the scope of evaluation man filtes are noted. Specific comments are more experiences procedures observations, interasi prountones and checklists, attitude scales, in a carrow special paper and special tests. Both go mal and specific singlestions for planning tests. The writing various types of test items are meed Amaric dated list of selected references is incl durdir cattention to documents which will side additional help (IP)

2410

ED 081 846

ED 086 517

Scott, Norval C. Je Zip Test.

Butte County Superintendent of Schools Oroville, Calif.; California State Dept. of Education, Sacramento. Bureau of Community Services and Migrant Education.

Spons Agency Bureau of Elementary and Secondary Education (DHEW OF), Washington, D.C.

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Achievement Tests, \*Diagnostic Tests, Elementary Education, \*Elementary School Mathematics, \*Grouping (Instructional Purposes), \*Language Fluency, Language Skills, Language Tests, Migrant Children, \*Migrant

Education, Reading Diagnosis, Reading Level A copy of the Zip Test, designed to determine quickly the grade placement of a migrant child in reading and math and to assess his English language facility, is presented. The purpose of the test is to locate the instructional level at which the child can effectively use mathematics and reading books and to indicate his ability to conceptualize verbally in English. The test is not intended for use in chronological grade placement. The test consists of a group of pictures of objects and activities, a series of simple words, six brief stories (each consisting of only a few sentences), a series of multiple-choice word opposites, a group of shapes and numbers, and a series of arithmetic problems. Two forms for use in recording the child's performance on the test and placement level are also presented. (KM)

ED 033 048 Skili 1 -- el Grouping in Modern Mathematics K-6; Attachment I.

Clark County School District, Las Vegas, Ne Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No. BR-8-I-065 Pub Date Jun 69 Grant OEG-9-8-081065-0159-010 Note 219p.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Arithmetic, \*Elementary Mathematics, \*Evaluation, \*Te ts Identifiers Nevada

Included in this document are tests used to assess achievement in mathematics (K-6) in an experimental study conducted in the Clark County School District in Nevada. Fach test is designed to assess learning at a definite skill level. Included are directions for administering each test, behavioral objectives assessed by each test and each test item, and a circular answers for each test item. This document : the best copy available of the report. [Not availabe in hard copy due to marginal legibility of original document] (RP)



# VARIED TOPICS: K-3

2500 ED 175 652 CSMP Mathematics for the Upper Primary Grades Part II, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measure-ment. Workbooks. Final Experimental Version. Centrai Midwestern Regional Educational Lab., St.

Ann, Mo.

Spons Agency National Inst. of Education (DHEW), Washington, D.C. Pub Date 79

ote 346p.; For related documents, see SE 027 875-892; Contains colored charts and activities which may not reproduce well; Not available in

hard copy due to copyright restrictions
Pub Type Guides - Classroom - Teacher (052)
EDRS Trice - MF01 Plus Postage, PC Not Available from EDRS.

ble from EDRS.

Descriptors - Curriculum Development, \*Curriculum Guides, Early Childhood Education, \*Elementary School Mathematics, Geometry, \*Instructional Materials, Mathematical Logic, \*Mathematics Curriculum, \*Mathematics Instruction, Measurement, \*Number Concepts, Primary Education, Set Theory, Teaching Guides, Tarthaut, Workbook. Textbooks, Workbooks
Identifiers \*Comprehensive School Mathematics

Program

This guide represents the final experimental ver-sion of an extended pilot project which was conducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized at having introduced colored arrow drawings ('papygrams"; and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in emates at the elementary and secondary teser in Belgium. The CSMP curriculum follows the "spiral approach." The text begins with exercises in the Language of Strings and Arrows. These are in-tended to teach the skills of classification and provide a language for studying and talking about relationships. The section entitled Geometry and Measurement emphasizes "experience" rather than "mastery" Activities deal with distance and measurement in an unsophisticated sense. Five workbooks are included with problems of varying levels of difficulty all in one booklet. The first ten probiems of each booklet are easy problems, the next ten to twelve pages are average level difficulty, and the last ten pages are more challenging problems. The students have the opportunity to work individually with the workbook sections (Author-SA)

ED 175 651

Heidema, Clare Schweitzer, Janis

CSMP Mathematics for the Upper Primary Grades Part 11. Teacher's Guide [and] Worksheets. General Introduction. The World of Numbers. Final Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

pons Agency National Inst. of Education (DHFW), Washington, D.C. ub Date. 79 Pub Date

Note: 465p. For related documents, see SE 027 875-893, Contains colored charts and activities which may not reproduce well. Not available in

hard copy due to copyright restrictions
Pub Type Guides - Classroom - Teacher (052)
EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Lescriptors Curriculum Development, Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Instructional Materials, integers, \*Mathematical Logic, \*Mathematics Curriculum, Mathematics Instruction, Multiplication, \*Number Concepts, Prinary Education, Rational Numbers, Set Theory, Teaching Guides, Textbooks, Workbooks Identifiers \*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the United States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Paps "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Suggestions are given for acquiring materials for lessons. This guide is divided into four sections which in-

clude: Notes to the Teacher, Suggested Schedule of Lessons, Questions and Answers / bout the Comprehensive School Mathematics Program, and The World of Numbers. Worksheets for the students accompany the lide. (Author SA)

ED 175 650 Heidema, Clare Schweitzer, Janes

CSMP Mathematics for the Upper Primary Grades Part I. Teacher's Guide [and] Work-

sheets. General Introduction. The World of Numbers. Final Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C. Pub Date 78

Pub Date 78 Note 442p.: For related documents, see SE 027 875/893; Contains colored charts and activities which may not reproduce well. Not available in

hard copy due to copyright restrictions Pub Type—Guides - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Addition, Curriculum Development, Curriculum Guides, Elementary Education, \*Ele-mentary School Mathematics, \*Instructional Materials, Integers, \*Mathematical Logic, \*Mathematics Curriculum, Mathematics Instruc-tion, Multiplication, \*Number Concepts, Primary Education, Set Theory, Subtraction, Teaching Guides Textbooks, Workbooks

Identifiers-- \*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the United States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." This guide includes the General Introduction and "The World of Numbers." The program description includes suggestions for teaching the materials and using the work pages. Suggestions for organizing the program are also given. Worksheets for the students accompany the guide (Author SA)

ED 175 649 CSMP Mathematics for the Upper Primary Grades Part I. Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Workbooks, Final Experimental Version. Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency—National Inst. of Education (DHEW), Washington, D.C. Pub Date—78

Note = 371p.; For related documents, see SE 027 875-893; Contains colored charts and activities which may not reproduce well; Not available in

hard copy due to copyright restrictions.

Pub Type— Guides - Classroom - Teacher (052)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Addition, Curriculum Development, Curriculum Guides, Elementary Education, "Elementary School Mathematics, Geometry, "Instructional Materials, Integers, "Mathematical Logic, Mathematics Instruction, Measurement, Multiplication, "Number Concepts, "Primary Education, Rational Numbers, Set Theory, Subtraction, Teaching Guides, Textbooks, Workbooks

Identifiers -- \*Comprehensive Senool Mathematics Program

This guide represents the final experimental version of a pilot project conducted in the Unites States between 1973 and 1976. The ideas and manner of presentation are based on the works of Georges and Frederique Papy. They are recognized as having introduceu colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach." Suggestions are given for acquiring materials for lessons. This guide is divided into the Language of Strings and Arrows, Geometry and Measurement, and the appendix, which contains the String Game. The Ive workbooks in this volume are intended for in-dividual work. The answer key for the workbooks is included with the guide. A chart is given for the

teacher to keep track of each student's progress (Author SA)

ED 175 636

Saunders, Kevin Schweitzer, Janis

CSMP Mathematics for the First Grade Part II, Teacher's Guide [and] Worksheets, Final Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo

Ann, Mo Spons Agency National Inst. of Education (DHEW), Washington, D.C. Pub Date. 79 Note. 592p., For related documents, see SE 927 875-893, Not available in hard copy due to copyright restrictions. Contains colored charts and ac-

tivities which may not reproduce well Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF03 Plus Postage, PC Not Atailable from EDRS.

Descriptors Curriculum Deselopment, \*Curriculum Guides, Early Childhood Education, \*Elementary School Mathematics, Grade 1, \*Instructional Materials, Mathematical Logic, \*Mathematics Curriculum, Mathematics Educa-tion, \*Mathematics Instruction, \*Number Con-cepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Workbooks

Identifiers \*Comprehensive School Mathematics

Program

This Teacher's Guide for first-grade mathematics is an outgrowth of an extended pilot project conducted nationwide between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams'\*) and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral ap-proach". The guide emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. The Teacher's Guides for first grade are bound in two volumes. This part is the second volume and modules eighty lessons for the second volume and includes eighty lessons for the second semester. Each lesson is summarized, described, and illus-trated. Materials for the student and the teacher are given. Suggestions for organizing the lessons on a month-to-month basis reflect the experiences of the CSMP staff in developing the curriculum. In the appendix, the teacher is provided with information to enable him her to teach the String Game, a game which is developed and reinforced throughout the CSMP curriculum. Worksheets for the students accompany the guide. (Author SA)

2505 ED 175 635

Saunders, Kevin And Others CSMP Mathematics for the First Grade Part I, Teacher's Guide [and] Worksheets, Final Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

pons Agency National Inst. of Education (DHEW), Washington, D C. ub Date 78 Spons

Pub Date 78 Note 642p: For related documents, see SE 027 875-893. Not available in hard copy due to copyright restrictions; Contains colored charts and ac-

tivities which may not reproduce well Pub Type - Guides - Classroom - Teacher (052) EDRS Price - MF03 Plus Postage, PC Not Available from EDRS.

Descriptors Curriculum Development. riculum Guides, Early Childhood Education, \*\*Relumentary School Mathematics, Grade 1, \*In-structional Materials, Mathematical Logic, \*Mathematics Curriculum, Mathematics Educa-tion, \*Mathematics Instruction, \*Number Concepts, Primary Education, Set Theory, Teaching Guides, Textbooks, Worksheets Identifiers \*Comprehensive School Mathematics

Program

This Teacher's Guide for first-grade mathematics is an outgrowth of an extended pilot project conducted nationwide hetween 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy They are recognized as having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral ap-





The guide emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information V list of demonstration manipulative materials as an able from CSMP is presented as well as inavailable from Coster to presented as well as in-invalual materials for each student. Other materials no available from CSMP are announced in the text in advance of the lessons for which they are needed. This is part. Lot a two-part. Teacher's Guide. Eighty essens are included and each is titled, described, at a summinared with a list of materials presented by egestions for organizing the program on a months. of Section 18 of transfering the program on a month-tropic th basis for one semester teffects the experi-trices of the CSMP staff in developing the actionate Questions which are frequently asked about CSMP are a Swered insection two of the type Worksheets for the students are included told-Sec. 835

2506

ED 175 634

Chent.e.

CSMP Mathematics for Kindergarter, Teacher's Guide [and] Worksheets, Final Experimental

theretical Microscottin Regional Educational Cart, St.  $\Delta t \simeq \Delta t_{\rm tot}$ 

Avia No.

Note: A Notice Notice and Institute of Education Defends were moved D.C.

Earl Date: The Transfer aged documents, see Sp. 621.

inc. Syndy, his related documents, see \$6,027,578,893. Not us allable in hard convidue to converge translations. Contains volveed charts and ac-

Listia's when may not reproduce we! Published Gundes - Classroom - Teacher 0.520 EDRS Price - MF03 Plus Postage, PC Not Available from EDRS.

ole from EDRS.

Descriptors Carricalani Development, \*Carricalani Development, \*Carricalani Development, \*Carricalani School Mathematics, \*Instructional Materials, kindergarten Chidren Mathematical Logic, \*Mathematics Carricalani Mathematics Instruction, \*Number Concepts, Primary Education, Set Theory, Teaching Gindes, Textbocks, Worldson,  $W = \pi \gamma_{\rm corr}$ 

Lientifiers \*Comprehensive School Mathematics Program

Unix guide represents the final experimental versold of an extended pilot project which was con-flicted in the United States between 1975 and 1976. The internet of presentation and the pedagogical ateas and took are based on the works of Georges and Frederique Papy. They are recognized as hav-ing introduced colored arrow drawings inpany-grams hand models of our numeration sy from the Pany "immicompater"s into the teaching of mathematics at the elementary and secondary level in Beignum. The CSMP curriculum follows the hypital approach of the goode emphasizes that a topic may or in to children with intuitive leaps which might help them acquire successive pieces of information Suggestions are presented to the teacher for obtainit e and preparing materials for lessons. The list of materials is organized into those available and those not available from CSMP. The text of the guide is airvided into four sections. The first is an open letter to the leacher in which questions most frequently isked are answered. The next section is a set of ideas or how to develop a good numerical environment in La sariety of quick number activities for daily se. The Day-by-Day Guide, section three, contains 100x tessons. Each is titled, described, and illusrified. Materials necessary for the teacher and studetay are listed. The final section presents problems for both remedial and more challenging work. The lessons and activities are intended for whole group. small group, or individualized instruction. Work sheets for the students accompany the guide. (Au-

ther SAC

ED 173 129

Beatty, Leville And Others' Mathematics for the Elementary School, Book 1. Teachers' Commentary, Preliminary Edition. Standord Univ., Calif. School Mathematics Study Croup

Spotis Veency National Science Polindation, Washington D C

Washington D.C. Pub Date: 63 Note: 37 p., For related document, see SE: 027 961, ED 143 S33, ED 143 S38, and ED 144 836,

Contains occasional aight and broken type Pub Type Guides - Classroom's Tencher (1952)

Pub Type | Guides - Classiform's Tenener (182) EDRS Price - MF01 PC13 Plus Postage. Descriptors | "Addition, Curriculum - Curriculum Criades. Elementary | Education, "Elementary | Seption Mathematics, "Geometry, Grade 1, "In-

struction, Mathematics Education, Measurement, \*Northber Concepts, Subtraction Identifiers \*School Mathematics Study Group

This is a first-grade manual for teachers using SMSG elementary school text materials. For each shapter background information is given, for each section, objectives, vocabiliary, materials, suggested procedures, and further activities are listed. Chapter topics include (1) pre-number experiences, (2) recognizing geometric shapes, (3) building number concept (\$1 pre-addition and subtraction experiences, (\$1 mumbers and the number line, (b) comparing geometric shapes (7) addition and subtraction, Significant stages is additional and substaction, Significate value and numeration, (9) introducing linear measurement (10) extending addition and substaction traction, and (11) previous and extensions (MP).

FD 173 138

Bratte, Loslin Ind Others

Mathematics for the Elementary School, Book K. Teachers' Commentary, Preliminary Edition, Stanford Unit Cant School Mathematics Study

Spons Sychile National Science Foundation

Spons (years) National Science Foundation Wishington, D.C. Pub Date 63.
Note 537 for related document, see 81/27/062, ED 144/761, and FD 144/838, Contains occass of light and proken type.
Pub Type: Guides - Classicom - Teacher (082).
EDRS Price - MF01/PC03/Plus/Postage.
Descriptors: Curriculum, \*Curriculum Guides, Elementary Education, \*Plementary School Mathematics, \*Geometry, \*Instruction Kindercetten, Mathematics Inducation, \*Number Concepts, \*Set Theory Identifiers. \*School Mathematics Study Group This is a kindergarten manual for teachers using

This is a kindergarten manual for teachers using MSG vicinentary school lext inaterials. For each chapter, objectives, vocabulary, materials, and accounter, objectives, vocabulary, materials, and accounter. tivities to help descriptionicopts are given. Chapter topics include (1) sets, (2) recognizing geometric shapes, (3) comparison of sets, (4) subset, (5) forming and removing, (6) ordering, (7) using geometric shapes for directions and games, and (8) using mumhers with sets (MP)

2509

Beatte, Lesie And Others Mathematics for the Elementary School, Book 3, Student's Text, Part II, Unit No. 57, Revised Edition

Stanford Univ. Calif. School Mathematics Study

Group

Sports Agency National Science Foundation, Washington, D.C.

Pub Date 2, 59

Note 2, 35

For related documents, see SF 027

898.897

Guides - Classroom - Learner (051)

EDRS Price - MF01 PC09 Plus Postage.

Descriptors Currenium, Elementary Education, "Elementary School Mathematics, "Fractions, "Geometry, "Instruction, Mathematics Education, "Number Concepts, "Textbooks Identifiers Area, "School Mathematics Study

Group

This is part two of a two-part SMSG elementary school fext for third-grade students. The development of mathematical ideas in the text is ground. in appropriate experiences with things from the physical world at time immediate environment Chapter topics include (1) rudition and Subtraction, (2) length and area, (3) multiplication, (4) quotients, (5) division, and (6) rational numbers. (MP)

2510

Beatly, Leville And Others

Mathematics for the Elementary School, Book 3, Student's Text, Part I, Unit No. 56. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group

Sports Agency National Science Foundation, Washington, D.C. Pub Date: 65

240p. For related documents, see SE 027 895.498

Pub Type Guides - Classroom - Learner (051) EDRS Price - MF01 PC10 Plus Postage.

Descriptors Curriculum, Elementary Education, 
\*Flementary School Mathematics, \*Geometry, 
Grade \*, Graphs, \*Instruction, Mathematics Education, \*Number Concepts, \*Textbooks 
Identifiers \*Number Operations, \*School Mathematics Study Graph

ematics Study Group This is part one of a two-part SMSG electrical

school text for third-grade students. The developnent of in thiograde stingers. The develop-nent of in theratical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment Chapter topics include (1) sets of points, (2) addi-tion and subtraction, (3) describing points and num-mental topics in the content of the content. sers, and (4) arrays and multiplication (MP)

ED 173 089

Bears, Lean that there's Mathematics for the Elementary School, Book 2,

Student's Text, Unit No. 54, Keysed Edition, Stanford Cary, Carr, School Mathematics Study

Agency National Science Foundation, Washington D C Pab Date 64

Note: 289p., For related documents, see NE 027, 895-898

Gardes - Classroom - Learner (081) EDRS Price - MF01 PC11 Plus Postage.

Descriptors Curriculum Elementary Education,
\*Elementary School Marnematics, \*Competity Oracle 2. \*Instruction, Matthematics F., Latton, \*Measurement, \*Number Concepts Set Theory,

\*Textbooks Mentifiers Nampe, Operations, \*Nehool Marnematics Study Group

This is an SMSG elementary school text for secondigrade students. The development of mathematical ideas in the text is grounded in appropriate experiences with things from the physical world and the inmediate environment. Chapter topic sinclude (1) sets and numbers, (2) addition and subtraction (3) sets of points, (4) linear measurement, (5) computing sums and differences, (6) congruence of angles and mangles, (\*) arrays and multiplication, and (5) division and rational numbers (MP)

2512

ED 173 088

Beatte, Leslie 4nd Others

Mathematics for the Elementary School, Book 1, Student's Text, Unit No. 52, Revised Edition, Stanford Univ., Calif. School, Mathematics, Study Group

Spons Agency National Science Foundation, Washington, D C

Pub Date: 64 Note: 199p., For related documents, see SE 027 896-898 and ED 143-532

806-898 and ED 143-532
Pub Type Gindes - Classroom - Learner (05)
EDRS Price - MF01 PC08 Plus Postage.
Descriptors Curriculum, Elementary Education,
\*Elementary School Mathematics, \*Geometry,
Grade 1, \*Instruction, Mathematics Education,
\*Number Concepts, \*Net Theory, \*Textbooks
Identifiers Number Operations, \*School Mathematics Study Group
That is an SMSG elementary school text for firstgrade students. The development of my kematical

grade students. The development of machematical ideas in the text is grounded in appropriate experiences with things from the physical world and the immediate environment. Chapter topics include, (1) sets and numbers, (2) ametals, and the number line, (3) sets of ten. (4) introduction to addition and substruction. traction, (5) recognizing geometric figures, (6) place value and numeration; and (7) arrays and multiplication. (MP)

2513 ED 167 387

Berger, Jennie - Lombardi, Alice D. Mathemat cs. Grade 3. Curr ...lum Bulletin No. 9. New York City Board of Education, Brook lyn, N.Y. Div. of Educational Planning and Support

Pub Date 78
Note 184p.; For related document, see SE 026
765. Not available in hard copy due to copyright

Available from Board of Education of the City of New York, Publications Sales Office, 110 Livingston St., Brooklyn, New York 11201 (\$3.50, Make checks payable to Auditor, Board of Educa-

Pub Type uh Type — Guides - Classroom - Teacher (052) Collected Works - Serials (022)

Collected Works - Serials (022)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum, Curriculum, Guides, Elementary Education, \*Elementary School Mathematics, \*Grade 3, \*Instruction, Learning Activities, \*Spiral Curriculum, \*Teaching Guides, Accomprehensis e mathematics program for ear de-A comprehensive mathematics program for grade is presented in 66 units. These units are organized around four central themes. (1) number and numeration, (2) operations with numbers, (3) geometry and incasurement, and (4) algebraic concepts. graphs, probability, statistics, and problem-solving

A spiral approach is used with various topics being indexed as to unit and page. Specific learning experiences are suggested for each unit. Suggested use of mathematical laboratory materials is found throughout (MP)

2514 ED 167 386

Berger, Jennie Lombardi, Auce Mathematics, Grade 2. Curriculum Bulletin No.

New York City Board of Education, Brooklyn, N.Y. Div. of Educational Planning and Support ub Date 78

Pub Date T8
Note T8() For related document, see SE 026
T00, Not available in hard copy due to copyright

Assilable from Board of Education of the City of New York, Publications Sales Office, 110 Living-ston St., Brooklyn, New York 11201 (\$375) Make check payable to Auditor, Board of Educa-

Pub Type Guides - Classroom - Teacher (052) Collected Works - Senats (022)

# EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors \*Curriculum, Curriculum, Guides, Elementary Education, \*Fementary School Mathematics, \*Grade 2, \*Instruction, Learning Activities, \*Spira, Curriculum, \*Teaching Guides A comprehensive mathematics program for grade 2 is presented in 58 units. These units are organized around four central themes. (1) number and numeration, (2) operations with numbers, (3) geometry and measurement, and (4) graphs, problem solving. and probability. A spiral approach is used with varione topics being indexed as to unit and page. Special learning experiences are suggested for each unit. Suggested use of mathematical laboratory materials is found throughout (MP)

#### ED 166 041 Mathematics for Georgia Schools, Volume I: Primary Grades.

Georgia State Dept of Education, Atlanta Office of Instructional Services Pub Date 178

Note: 134p. For related document, see SE 026.

.b Type Guides - General (050)

Published Guides - General (1980) EDRS Price - MF01 PC06 Plus Postage, Descriptors \*Corriculum Lementary Education, \*Elementary School Mathematics, Geometry, \*Instruction, Measurement, Number Concepts, \*Frimary Education, Proposition Solving, Set The-ory, Statistics, \*Teaching Guides This guide is for the use of teachers in the primary

grades and is organized around six concepts, sets, numbers and numeration, operations, their properties and number theory, relations and functions; geometry, measurement, and probability and statistics. Objectives and sample activities are presented for each concept. Separate sections deal with the processes of problem solving and computation. A section on updating curriculum includes discussion of continuing program improvement, evaluation of pupil progress, and utilization of media. (MP)

2516 ED 162 873

Chinn, William G. And Others.

Studies in Mathematics, Volume XIII: Inservice Course in Mathematics for Primary School Teachers, Revised Edition. Stanford Univ., Calif. School. Mathematics Study

Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date ħħ

Note 164p Pub Type Books (010)

EDRS Price - MF01 Plus Postage, PC Not Availa-

DRS Price - 1944 ... ble from EDRS.
Descriptors "Anthmetic, Curriculum, "Disadvanminary Education, "Elementary
Education, "Elementary taged. Elementary Education. \*Elementary School Mathematics, \*Inservice Teacher Education. \*Instructional Materials, Mathematics, Mathematics Education, Teaching Guides, \*Textbeachs

Identifiers School Mathematics Study Group

This is a SNiSG inservice textbook for primary school teachers. One of the goals of the book is to promote the teaching of mathematics in accord with a conceptual development of mathematical ideas The authors indicate that rote learning is frequently onsidered the only way to learn mathematics, espe-cially for culturally deprived children. A feature of this fext is an attempt to attend to learning problems that may be associated with the culturally disadvan-

taged. Other features of the text include sections in each chapter dealing with applications to feaching and frequently asked questions. Chapter topics inchildren, (2) sets, (3) comparing sets, (4) whole numbers, (5) set operation, (6) introduction to geometry, (7) numeration-naming numbers, (8) addition, (9) multiplication, (10) subtraction, (11) division, (12) elements of geometry, (13) addition and subtraction techniques, (14) introducing rational numbers, (15) premeasurement concepts, (16) multiplication and division (echniques, (17) measurement, and (18) structure (MP)

2517

Beatty, Leville And Others

Mathematics for the Elementary School, Book 2. Teacher's Commentary, Unit No. 55. Revised

Stanford Univ., Calif. School, Mathematics, Study

Group
Spons Agency National Science Formation
Washington, D.C. 8

Pub Date 64 Note 54°p. For related documents, sc. 139-142

Pub Type Guides - General (050)

EDRS Price - MF02 PC22 Plus Postage.

Descriptors Curriculum Guides, Elementary Edu-Resemptors: Curriculum Guides, Elementary Edu-cation, \*Elementary School Mathematics, Grade 2, Instruction, \*Instructional Materials, \*Lesson Plans, Mathematics Education, \*Number Con-cep's, Primary Education, \*Teaching Guides Identifiers \*School Mathematics Study Group

Detailed lesson plans are provided in this teacher's guide for the SMSG text materials for grade Included are chapters on sets and numbers (review), addition and subtraction (review), sets of points, addition and subtraction (extension), linear measurement, computing sums and differences, congruence of angles and triangles, arrays and multiplication, and division and rational numbers Mathematical background, objectives, vocabulary, and materials are presented, followed by suggested discussion questions and activities. Answers for worksheets are also included (MS)

2518 ED 144 836

Beauty, Leylie And Others.

Mathematics for the Elementary School, Book 1. Teacher's Commentary, Unit No. 53, Revised

Stanford Univ. Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date: 64

Note: 459p., For related documents, see SE 023. 139-143

Pub Type Guides - General (1950)

EDRS Price - MF01 PC19 Plus Postage.

Descriptors Curriculum Guides, Elementary Education, \*Elementary School Mathematics, Grade Instruction, "Instructional Materials, "Lesson Plans, Mathematics Education, \*Number Concepts, Primary Education, \*Teaching Guides Identifiers \*School Mathematics Study Group

This teacher's guide for the SMSG text materials for grade I considers ten chapters, sets and numbers, numerals and the number line, sets of ten, introduction to addition and subtraction, recognizing geometric figures, place value and numeration, addition and subtraction, arrays and multiplication, partitions and rational numbers, and linear measure-ment. Mathematical background is presented for each chapter, followed by lesson plans detailing suggested activities and questions. Objectives, needed materials, vocabulary, and answers to worksheets are included (MS)

2519

ED 144 835

Beatty, Leslie And Others

Mathematics for the Elementary School, Book K. Teacher's Commentary, Unit No. 51. Revised Edition.

Stanford Univ., Calif. School. Mathematics. Study Group

Spons Agency National Science Foundation, Washington, D.C.

Note 117p. For related documents, see SE 023 139-143. Contains occasional light type Pub Type Guides - General (050)

EDRS Price - MF01 PC05 Plus Postage.

Descriptors Carriedium Guides, Flementary Edu-cation, \*Flementary School Mathematics, \*In-structional Materials, Kindergarten, \*Lesson structional Materials, Kindergarten, \*Lesson Plans, Mathematics Education, \*Number Con-cepts, Primary Education, \*Teaching Guides Identifiers \*School Mathematics Study Group

In this guide for the SMSG text materials for kindergarten an overview describes the philosophy be-hind the program. Mathematical background is presented, followed by activities to develop concepts on sets, recognition of geometric figures, comparison of sets, subsets, forming and removing, companison of sizes and shapes, ordering, using geometric figures, and esing numbers with sets. Teaching procedures and questions are detailed. Materials books, and vocabulary are also listed. (MS)

2520

ED 144 791

hinn. Pilliam G. And Others

Mathematics for the Elementary School, Book K. Teacher's Commentary, Special Edition (Revised).

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency N Washington, D.C. National Science Foundation, Pah Date 66

Note 112p., Contains occusional light and broken

hype
Pub Type Guides - General (050)
EDRS Price - MF01 PC05 Plus Postage.
Descriptors \*Arithmetic, \*Disadvantaged Youth,
Elementary Education, \*Elementary School
Mathematics, Geometry, Kindergarten, Mathematics, \*Number Concepts, Set Theory, \*Teaching Guides. ing Guides Identifiers \*School Mathematics Study (\*) sup

This is the Teacher's Commentary for Mathematies for the Elementary School, Book K. Special I tion. The writers have relied on the existing SMSG kindergarten und first grade materials as a frame-work. This special edition is designed to meet the needs of disadvantaged children Included in the Commentary are background information for the teacher, discussion of activities in the text, and answers to activities and exercises (RH)

ED 143 535

Chinn, William G and Others

Mathematics for the Elementary School, Book I (Part 2). Teacher's Commentary, Special Edition (Revised).

Stanford Univ., Calif. School, Mathematics Study Group

Spons Agency N Washington D C National Science Foundation,

Pub Date 66 Note 281p, For related documents, see SE 023 011-013, Contains occasional light and broken

type
Pub Type Guides - General (050)
EDRS Price - MF01 PC12 Plus Postage.
Descriptors "Arithmetic, "Disadvantaged Youth,
Elementary Education, "Elementary School
Mathematics, Geometry, Grade 1, Mathematics,
"Number Concepts, "Teaching Guides
Identifiers "School Mathematics Study Group
This is the Teacher's Commentary for Mathematics for the Elementary School, Book 1 (Part 2). Special Edition The writers have relied on the existing

cial Edition. The writers have relied on the existing SMSG kindergarten and first grade materials as a framework. This special edition is designed to meet the needs of disads antaged children. Included in the Commentary are background information for the teacher, discussion of activities of the text, and answers to activities and exercises. (RH)

ED 143 534

Chinn, William G And Others

Mathematics for the Elementary School, Book 1 (Part 2). Student Text. Special Edition (Revised).

Stanford Univ., Calif. School, Mathematics Study Group nons Agency

Spons Agency Washington, D.C. National Science Foundation,

Pub Date 66 Note 152p., For related documents, see SE 023 Note 1521 011-014

011-014
Pub Type Books (010)
EDRS Price - MF01 PC07 Plus Postage.
Descriptors \*Anthmetic. Disadvantaged Youth.
Elementary Education. \*Elementary School
Mathematics, Geometry, Grade 1, \*Instructional
Materials. Mathematics. \*Number Concepts.



\*Textbook: Identifiers: \*Nobook Mathematics Study for ap-ity this text, the writers have reactivity the SMSO mit first or ide materials as a trainer kil dergarter, and first grade materials as a tranegosist. This special edition is designed to meet the rocks of disade intaged children. Chapters 5 mouth 10 are included in this part. Chapter topics 7, table (5) Religiousing Geometri, Figures, 65). Place Value and Numeration, 67. Addition and Numeration, 68. Addition and Numeration, 68. Addition and Numeration, 68. Additional Numbers, and 60. Under Meissner em. The activities and even sessing like that the table of Rational Religions. that proches a RHA

2523 ED 143 544 one # Complete fee Object

Mathematics for the Elementary School, Book I (Part 1). Teacher's Commentury, Special Edition (Revised).

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No. S. Azerosa, Noticia, Science Foundation Wishington, Dit Pur Durch 68

Note: 148p. For to ared documents, see Silvey's THE RESTRICT SHOWING A LIGHT LAND ON THE Por open Mades General St

P.O. Type Mindes Generally Sold
FDRN Price (MF01 PC10 Plus Postage)
Description (Mf01 PC10 Plus Postage)
Description (Mf01 PC10 Plus Postage)
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Description (Mf01 Pc1 the needs of disadvantaged children Included in the sommentary are background information, to the tracker of selection of selection of selections. is a six to laterages and exercises (RH)

ED 143 537

ann Allian G. And Other

Mathematics for the Elementary School, Book I Part 1). Student Text. Special Edition (Resired).

Starters for a Charl School Mathematics Study ( ) . , "

Stark Nomes N Washington D.C National Science Foundation,

P. Date no Section documents see No. 123

EDRS Price - MF01 PC66 Plus Postage.

Lose plus - Arabinetic Disadvantaged 5 jub
Evinentary Education, \*Elementary 8, hood
Malmematics, Grade 1, \*Instructional Materials,

Manual Company of the Company Mathematics, Mathematics Education, \*Number Colleges, Set Theats, \*Textbooks, Educations, \*Solidy Group

his feetbook is based on the SMSG kindergarter and first grade materials as a transework. This speconceaning in designed to meet the needs of disador Fixed Fradien Chapters in the book include (1) Sets at J. Numbers, (2) Numerals and the Number Line, (3) Sets of Ten, and (4) Introduction to Addition and Subtraction. The student text contains a cattery of activities a covercises with imitted direc-tions. Detailed his actions for the teacher and ackgrownd materials are included in the Jeacher's Commentary (RH):

FD 13: 171 Mathematics Baseline Instructional Units, Appen-

dix D.
Danas In Jensey here's, hold District. Tex
Prop Date [3]

215p. For related documents, see SE 021 3.031

Pas Type Guides - General 10504

P.S. Cype. Condex - General (1999) EDRS Price - MF01 PC09 Plus Postage. Descriptors. \*Curriculum, Elementary Education, \*Elementary School Mathematics, Grade 3, In-struction, \*Instructional Materials, Mathematics Education Feaching Guides Etentifiers Dallas Independent School-District TX

This followers contains sample units for each of 21 mastery objects es in grade 3 mathematics, hach of these units includes a statement of the mastery objective a description of what the student should be able to do as a result of completing the activities a statement of the mathematical concept being covmedicleaching saggestivitis, a list of materials, and

2526 FD 177 188

Inne Fleation 4 Each

Introducing Multiplication and Division, Kan-garoos and Numbers: MINNEMAST Coor-dinated Mathematics - Science Series, Unit 17. Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center

Spens Agency National Spence Equitorior Washington De

Note: Springer of Post Property of Springer of Springe

20 Wash Later Ave. S.F., Micheagons, MN \*\*\*4

EDRS Price - MF01 PC03 Plus Postage. Describus - \*Carria am Gades Divisio - Le montres Estacation. \*Elementary School Math. montes Education, \*Elementary School Mathematics, \*Elementary School Science is so in a first calain, \*Interaccipi nary April achieves a varieties Methematics Education, Manaphatical \*Number Systems Primary Education, Process Education, Science Education, Units of Study, Whole Numbers (Lentifers, \*MINNEMAS), \*Minnesots Mathematics, \*MINNEMAS, \*Minnesots Mathematics, \*MINNEMAS, \*Minnesots Mathematics, \*Minnesots Minnesots Minnesots Mathematics, \*Minnesots Minnesots Min

ematics and Science Teaching Process. This solutions the seventeenth in a venes of 29.

coordinated MINNEMANT units in mathematics and seigned for kinderkatten and the propergrades. It tended for use by second-grade reachers, this unit guide provides a saminary and overview of the unit, a list of materials weeden, and descriptions of five groups of activities. The perposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for realing allows. ar diother instructional materia's are included in the pook. In this unit, multiplication is approached as repeated addition on a number line. In a second set of lessons, multiplication is considered in conjunc-tion with arrays. Addition and multiplication are ther, compared, in a simple tractions are introduced A final review section is also metaded (SD)

2527 ED 127 171

Dirtud, Grace H.: Page Laura M. Describing and Classifying: MINNEMAST Coordinated Mathematics - Science Series, Unit 3.

Mismesota Univ., Minneapolis, Minnesota School, Mathematics and Science Center

Sports Agency National Science Foundation, Washington, D ( Pub Date 7) Pub Date

on trade ofte 125p. For related documents, see SE023201-234, Photographs may not reproduce Note

Aya Jable from MINNEMANT, Minnemath Cen-20 Washington Ave., S.F., Minneapolis, MN 55414

Pub Type Grades - General (050)

EDRS Price - MF01 PC06 Plus Postage.

Descriptors \*Curriculum Guides, filementary Education \*Flementary School Mathematics. \*Elementary School Science, Experimental Curresilum \*Interdisciplinary Approach, Learning Activities, Mathematics Education, Pattern Recognition, Primary Education, Process Edigation, Science Education, Set Theory, \*Units of Studs

Identifiers \*MINNEMANT, \*Minnesota Mathematics and Science Teaching Project

This volume is the third in a series of 29 coordinated MINNEMAST units in mathematics and science for kindergarten and the primary grades Intended for use by kindergarten teachers, this unit guide provides a summary and overview of the unit, a list of materials needed, and descriptions of four groups of activities. The purposes and procedures for each activity are discussed. Examples of questions and discussion topics are given, and in several cases ditto masters, stories for reading aloud, and other instructional materials are included in the book. This unit deals with sets of objects, with problems of classification and description of objects, and with comparisons of sets. Activities described use property blocks and other objects in game, puzzle and story situations to develop conservation, and the basic notions of set theory (SD)

2528 ED 113 167

Blade Ruin M.

A Process Approach to I earning Arithmetic "First Year."

Allegherry County Schools, Pittsburgh, Par Excep-

Discourse Some Senars, Pittsburgh, Pa. Exceptions Children's Program

Spot Agency—Bureau of Elementary and Secondary Education (DHEW OF), Washington, D.C. Pub Date. 73 Pub Date Note:

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EDRS Price - MF01 PC06 Plus Postage

Descritors: Authoretic Basic Scills Carricularing Carricularin Gardes, \*Bamentare Scills Mathematics: Crade 1: \*Learning Acrystos, \*Low Admissionerit, Mathematics Education, \*Number Concepts, Primary, Education, \*Special Educanor Wideshees

Identifiers. Elementary Secondary Education Act

This cuttifular yande was developed for low achievers and students needing special programs in first grade mathematics. Modeled after the "Science A Process Approach" curry doing the mortanic missels of an infectated series of seaming the mortanic missels of an infectated series of seaming a tractice. Master worksheets for recommended activities are included in the gaide. The curriculum is fooded into ten units. The first and decis with the concept of numericals and with the first three swholes number. Subsequent units each dear with a single whose man per. Activities involve printing the numeral as well a associating the numeral with ap-propriate sets. A list of objectives and presand posttests are provided for each unit (SD).

2529 ED 107 534

Pavne Joseph N. Ea.

Mathematics Learning in Early Childhood. National Council of Teachers of Mathematics, Inc., Washington, D.C. Pub Date

Note: 300p; NCTM (7th Yearbook

Available from National Council of Teachers of Wallahie from National Council or reachers of Mathematics, Inc., 1906 Association Drive, Reston, VA 22091 (\$11 for NCTM members, single copy only, \$12 to general public, 2-9 copies, 10 percent off the list price, 10 or more copies, 20 percent off the list price).

Pub Type Reports - Descriptive (141) EDRS Price - MF01 Plus Postage, PC Nut Availa-

ble from EDRS.

Discriptors: \*Curriculum, Elementary Education, \*Elementary School Mair matics: Experiential Learning, Geometry, Instruction, \*Learning, Liferature Reviews, \*Mathema, 's Education, Measurement, Number Concepts, Problem Solving, \*Visible Information Yearbooks

Identifiers "National Council of Teachers of Mathematics

This yearbook presents many aspects of mathemities learning by children between the ages of three and eight. Addressed to teachers of primary school children, the book begins with chapters discussing learning and cognition, the primary curriculum, and research on mathematics learning at this age level, hight subsequent chapters deal with the teaching of specific mathematics content, probletti solving, mathematical experiences, number and numeration, operations on whole numbers, trac-tional numbers, geometry, measurement, and rela-tions, number sentences, and other topics. The final chapter discusses curricular change. A major theme throughout the noose with importance of experience to learning, and the building of new knowledge on the foundation these experiences provide. The book is designed to provide easy reference to both general information, such as answers to research questions, and suggested classroom activities related to specific topics. Many illustrations, the use of two-color printing, and a detailed index aid the user in this regard (SD)

2530

Elam Helen And Cthers

Mathematics Program for Grade 1, De Soto Parish Curriculum Guide.

DeSoto Parish School Board, Mansfield, La-Spons Agency Bureau of Elementary and Secondary Education (DHEW Ob), Washington, D.C. Pub Date. Aug 71

Note 41p Pub Type Guides - General (050)

Pub Type Guides - General (1996) EDBS Price - MF01 PC14 Plus Postage, Descriptors Addition, \*Carriculum Guides, \*File mentary School Mathematics, Fractions, Geo-metric Concepts, \*Grade I, Instruction.



\*Instructional Materials, Measurement, Number Concepts, Subtraction, Teaching Guides, \*Teach-ing Methogs, Tests, Whole Numbers

Elementary Secondary Education Act Int.e III

A program of mathematics instruction for grade one is provided in this curriculum guide. The feach-one kijal of pach lesson is stated in the Purpose section. Visual aids and manipulative materials useful in developing each lesson are suggested and additional teaching aids are listed. Suggestions for teachthe the lessons are separated into three distinct categories. Prebook activities, Using the Page, and Postbsook Activities. Selected activities that provide areater inhallenge for those populs who excel are in-Cluded Each unit concludes with a self-evaluation page ontition Checkup Time. Additional reviews and lests are also written for each unit. Topics oncred are elementary number concepts, sers and mests some marching, cardinal numbers and numers as the addition and subtraction combinations this uch nate, simple concepts of fractions, measurement and geometrical concepts, operations with ters measurement and number patterns, and some addition and subtraction using place same. A time budget chart lists the recommended page for completion of the proposed carriculum (JP).

# FD 689 488

Mathematics Grades K-3: A Teacher's Guide, buffing Public Schools N. F. Dis of Curriculum Evaluation, and Development

Pub Date ins Note 42p

Note 40p EDRS Price - MF01 PC02 Plus Postage. Descriptors - \*Course Content, Curriculum, \*Curriculum Guides, \*Flementary School Mathematicus, \*Instructional Materials,

Paising Guides

This curriculum kaide presents the autimes for use content in mathematics in grades K-3. For each grade level general overviews are given of the goals and objectives of the course. A detailed explanation of the content outline includes suggestions as to method of presentation. The mathematical concepts are explained using a technically correct approach. This is intended primarily for the teacher, so that the foundations she bins is with the pupils in an this man way are based on sound, accurate mathematical principles, (JP).

ED 07: 919

Conlicie Floris Blaine, Jeannie Happy Math - Happy Teacher Pub Date 72 Happy Kids.

Pub Date 72 Note 21 p Vernatio from Scott Resources, Inc., Box 2121, Fort Codins, Colorado 80821 (\$9.95 plus ship-

# EDRS Price - MF01 Plus Postage, PC Not Availa-

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - \*filementary School Mathematics, \*Experiential Learning, Games, \*Instructional Materials, \*Liboratory Procedures, Mampulative Materials, Mathematical Enrichment, \*Mathematical E

Miterials, Mathematical Enrichment, \*Mathematics Education, Mathematics Instruction Directions and materials for 57 mathematical cames and activatios are provided in this commercials sprepared package. Suggested use is with preschibil intrough third grade levels. General content areas include functions and graphs, geometry, logical thinking, measurement, numbers and operations, problem solving, sets, and statistics and probability. (DT)

ED 065 502

Reed, Mary June Mathematics in the Kindergarten, Bloom tyton Public Schools, Minn Pub Date 169

Note Sep EDRS Price - M101 PC02 Plus Postage. Descriptors \*Conficiant Guides \*Early Child-hood Education, \*Kindergarten, \*Mathematics Curriculum, \*Number Concepts GRADES OR AGES, Kindergarten SI BJECT MATTER Mathematics ORGANIZATION SES DELESTRICA PDBLAD ANCIE The model has

AND PHYSICAL APPEARANCE. The guide has seven sections. 1) emphasis in mathematics, 2) three approaches use of number in daily activities and content areas, manipulative materials and math-emotivals structured materials, and stricturing spectal activities and or problems, 3) number and operations, the natural numbers counting and numeration, 4) elements of a set, 5) measurement and estimation meaning of measurement, b) geometry, and ) hibliography of books for K-3. The guide is

hthographed and spiral board with a soft cover OBJECTIVES AND ACTIVITIES. General objections tives are discussed in the first section. Sections 2 contain detailed descriptions of activities IN-STRI CTIONAL MATERIALS Materials needed are described in the various activities, and there is also a polyticin bibliography. STUDENT ASSESS MENT, Note, (MBM)

ED 052 970

Mathematics, Grade I, Scope and Seg-ence, New York City Board of Education Brooking.

Bareau of Curriculum Development

Report No. Corru-Ball-2 Pub Date 71 Note 24p

Available from New York City Board of Educa-tion, Publications Sales Office, 110 Languagen Street, Brocklyn, New York 11201 (81.00)

# EDRS Price - MF01 Paus Postage, PC Not Availa-

ble from EDRS.
Descriptors - A'gebra, \*Chirrical and Galles, \*hiermentary School Mathematics, Geometry \*Grade Graphs, Meas dement, Set Theory, Statistics Provided are the scott and sequence of man-ematics topics for Grade I to be implemented by teachers and supervisors. The guide is presented in the form of 66 units, each being organized around the themes of (4) sets, numbers, and numeration, (2) operations, (4) geometry and measurement, and (4) or scalaring concepts and measurement, and (4) a gentally concepts, graphs, probability, and statistics. The sequence is structured to provide a spiral of cyclic approach for presentation of the concepts and skills. (Author, JG)

ED 048 154 Activities for Building Concepts of Logical Thinking. Developmental Skills Series, Booklet III.

Endersity City School District, Mo Spots Agency Office of Education (DHEW), Washington, D.C. Bureau of Research Bureau No. - BR-8-1328

Pub Date | Oct 68 Contract | OFC 5-70161 3280-322 Note | 150p

### EDRS Price - MF01 PC06 Plus Postage.

Descriptors Classification, \*Concept Formation, Conservation (Concept), \*Corriculum Gindes, \*Fundamental Concepts, \*Eindergarten, \*Preschool Curriculum, Serial Ordering, Symbolic

GRADES OR AGES Four-, five, and sixtyear olds. St. BJECT MATTER. Cognitive areas of symbolism, Classification, conservation, seriation, spa-tial relationship, and temporal relationships ORGANIZATION AND PHYSICAL APPEAR-ANCE. The guide is an ideal into six sections, one for each of the above cognitive areas. Each section lists materials and Jeschbes activities, illustrations are interspersed. The guide is mimeographed and spiral boun, with a soft cover. OBJECTIVES AND ACTIVITIES. A short list of general activities is given for each cognitive area, followed by detailed instructions for numerous specific activities over 100 in all. A class inventory lists activities a child should be able to do at different ages. INSTRUC-TIONAL MATERIALS A list of materials accompanies each list of general activities and each description of a specific activity STUDENT AS-SESSMENT. No provision other than the class inventory is made. OPTIONS. The guide is suggestive only. It makes no mention of timing or means of incorporating the activities into a total program. (RT)

2536 FD 034 699 Mathematics Part Two, Pre-Kindergarten, Kindergarten, Grade One, Part II. Curriculum Bulletin,

1966-67 Series, No. 6B. New York City Board of Education, Brooklyn, N.Y. Burcau of Curriculum Development

Pub Date 69 Note 1955

Available from New York City Board of Educa-Available from See Confee, 110 Livingston ton, Publications Sales Office, 110 Livingston Street, Broodlyn, New York 11201 (5:00) EDRS Price MF01 Plus Postage, PC Not Available.

ble from EDRS.

Descriptors Arithmetic, \*Curriculum Development, \*Elementary School Mathematics, \*Guidelines, \*Instruction, Mathematics, \*Modern Muthematics, Number Concepts

This curriculum bulletin is the second part of "Mathematics Pre-Kindergarten," Kindergarten, and Grade One "This is a developing curriculum program that incorporates the pre-kindergarten into the educational system and reorganizes mathematics materials in the early childhood years. The mate rais in this bulletin deal with numbers and operations with numbers, early levels of number-line concepts, geometric concepts, and tractional parts Included also is a suggested plan for introducing teries and subtopies and a scope and sequence for the indicated grade (RP)

ED 025 421 Mathematics, Grade 2, Grade 3, Scope and Se-

New York City Board of Education, Brookless, N.Y.

New York City Board of Edicar on Brookley, N.Y. Bareas of Carticle and Development.
Report No. 100 poly 2.2.2.
Pub Date 188.
Note 19p.
Vailable from New York City Board of Edicar into Publications Naies Office 110 1 congston Street, Brooklyn, New York 1120 (1811) on 1888.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

ble from EDRS.
Descriptors: \*Carrialian Development, \*Flementary School Marnemaries, Geometry, Grade 2, Grade 3, \*Mathematics Number Concepts Sequential Learning, \*Teaching Grades Identifies. New York, New York (New York). This publication is designed to extend an astrogener the computational skills and mathematical designed.

cal understandings of children in Grades 2 and 3. It presents an everal scope and detailed sequence for implementation by teachers and supervisors, based on the modern program introduced in preskindereatten, kindergarter, and first grade classes. The scope and sequence for this publication is presented in the form of the lawhich are organized around four central themes (1) Sets, Number, and Numeration, (2) Operations, (3) Geometry, and Measurement, and (4) Problem Solving. Phe sequence is structured to provide a spiral or cyclic approach for presentation of the concepts and skids (RP)

ED 024 599 Mathematics: Pre-Kindergarten, Kindergarten, and Grade One, Part One,

- York City Board of Education, Brooklyn, NY Pur Date on Note Tup

Note: high state of the state of the ca-tion, Publications Sales Office, 170 Transiston Street, Brooklyn, New York 1120, 181 80.

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Arithmetic, Course Organization, \*Curriculum, \*hiementary School Mathematics, Grade I, Instruction, Kindergarten, Featring Activities, Mathematical Concepts, \*Mathematics, Number Concepts, \*Teaching Guides Identifies New York, New York (New York) This publication is the first part of a series "Mathematics, Pea Findamatics, Frederick Concepts, and Proceedings of the Proceedi

ethatics - Pre-Kindergarten, Kindergarten, and Grade One "Thi-bulletin is a part of the developing curriculum program that incorporates the pre-kin-dergarren into the educational system and reorganizes mathematics materials in the early childhood years. Part One of the program presented in this bulletin deals mainly with sets and subsets, numbers in sets, and number names. Part Two, published in 1967, deals with numbers and operations with numbers, early levels of number-line concepts, geometric concepts and fractional parts. It is expected that this material will serve as a sound foundation for future curriculum developments in the area of mathestudies (RP)



# VARIED TOPICS: 4-8

2600 1:10 17 Mathematics for the Elementary School: Selected Units E-4150, Revised Edition.

Stanford Univ. Calif. School Mathematics Study Group

Spots Agency National Science Foundation, Washington Dic. Pub Date: 52

Note: 151p. Contains recasional right and broken inde un fixae : Grudes

Plan Type Gruntes Classification Learner (181) EDRS Price - MF01 PC07 Plus Postage.

EDRS Price - MF01 PC07 Plus Postage.
Describines Correction in emergiax 3 diagrams. Beautiful School Correction in emergiax 3 diagrams. Beautiful School Correction Monthly Programs. Beautiful School Correction Monthly Real Laboration. School Correction In Society and Constitution of the emission of the emission of the emission of the European School Correction. The Shock at consists of three and school from the SMS Great majoritation of the European School Correction. School Correction of the European School Co mount of traction and deners of NEO

2601 FD 175 794 Intermediate Mathematics Study Guide

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Washington Dig.
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Note 17p
Published Reference Marchael Chin National Source Engineer of

EDRS Price - MF01 PC02 Plus Postage.
Districts \*Nigebra \*Bibli graphics.

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thets Euletions (Mainematics), (September 2017)

Mathematics Study Group (1997), Special Mathematics Study Group (1997), Mathematics Study Group (1997), St mathematics contained in the text. For each chapter of the text a brief resume of its content is followed To a list of annotated references which are classified as a committaty or advanced. Chapter topics include the cumentary or advanced. Chapter topics include the cumber systems (2) coordinate geometry. (3) 13) Lumber systems, 14) coordinate galactic file (5) equa-ticitiens, (4) complex number systems, (5) equa-ticitiens, (4) complex number systems, (5) equato the two variables, the systems of equations of Karrhurs (Schrigene metry, 19) vectors, (10) polar form, (1) sequences, (12) permutations, and (1) a servaco directores, (MP)

2602 ED 175 A48 CSMP Mathematics for the Intermediate Grades Part IV, Teacher's Guide. The Languages of Strings and Arrows, Geometry and Measurement. Probability and Statistics.

Central M dwestert, Regional Educational Last St. Ann. Mo.

ports Agency National I (DHEW), Washington, D.C. ub Date 18 Trist of Indulation

Note: (883). For related documents, see 15 \$75,893. Not available in hard copy due to 10pyselected that's and ac-Aities which may not reproduce well 5 Type - Guides - Classioom - Teacher (052)

EDRS Price - MF01 Plus Postage, PC Not Availahie from EDRS

\*Carricularii Guides, \*Elementary School Mathematics, Games, Geometry, \*In-structional Materials, Informediate Grades Mathematica, Logic, \*Mathematics Curriculum. Mathematics Instruction, Measurement, Probability, Ratio al Numbers, Set Theory, Statistics,

Leading Guides, Textbooks, Workbooks Identifiers: \*Comprehensive School Mathematics

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings (papygrams") and models of our numeration system (the Papy "minicomputer") into the reaching of mathematics at the elementary and secondary tevel or Beignum. This program follows the 'spiral approach'. This guide contains the Lan-

gaage of Strings and Allows, Geometry and Measarement, and Propa his and Statistics. The of iguages are intended to provide a precise way to communicate ideas about classification and resicommunicate areas a site of the first tions. The String Game is again presented to enscourage critical thicking. Measurement and paradelism are included in the Geometry section of the guide. Random number stories and propability games are a part of the section on Probability and Statistics (Author SA)

ED 175 547 CSNP Mathematics for the Intermediate Grades Part IV. Teacher's Caide. The World bers. Experimental Version.

Spins Agency (Natural) 1887 of Filliphus (2000-000) Washington, D.C. Pur Dute 178

The Pater (Sop.) For related documents, see Sing. 2. See Sop. For related documents, see Sing. 2. See Sop. 2. See

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EDRS Price (MF) Plus Postage, PC Not Availa-

ble from EDRS.
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"Mathematics Carrie Jum, Mathematics Institu-tion, Multiput ation, "Number Concepts Rational Numbers, Teaching Guides, Textbooks, Work ٠, .,. .

lde tiffets "Comprehens, e School Mathematics Pr. grain

Inis gaide represents the final experimental versish it a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having intro-laced coloned arrow drawings ('papygrams') and stude's of our numera-tion system (the Papy Timin computer ) into the teaching of inathematics at the elementary and seconducty level in Belgium. This program tollows the "Spiral approach. This guide in Judes the following topics (1) multiplication, (2) multiple, and divisors, (3) rational numbers, (4) abacuses and algorithmic thinking. (5) standard algorithms of arithmetic, (6) composition, and (7) hand-calculator puzzles. Of the composition of the co and new concepts a e-covered within these topics The situations provided are intended to develop problem-solving skills and an understanding of mathematical steak and a neepts in the world of numbers. (Author, 83)

ED 175 646

ternsteing, Richard And Others CSMP Mathematics for the Intermediate Grades Part IV, Teacher's Guide, General Introduction. Workbooks, Experimental Version.

Central Midwestern Regional Educational Lab St Ann. Mo-

Agency National Inst. of Education s (DHEW), Washington, D.C. Puk Date

Note: 188p. For related documents, see NF 027 875-896. Contains colored charts and activities which may not reproduce well. Not available in

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Pub Type Guides - Classroom - Teacher (082)
EDRS Frice - MF01 Plus Postage, PC Not Availabie from EDRS.

Descriptors "Carriculum Guides, "Elementary School Mathematics, Instructional Materials, In-termediate Grades, "Mathematical Logic, "Mathmatics Curriculum, Mathematics Instruction, Number Concepts, Teaching Guides, Textbooks, Workhooks
Identifiers \*Comprehensive School Mathematics

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams') and models of our numeration system (the Papy "immicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the control approach. This guide includes the general it hold action and the workbooks. Six workbooks are presented which should offer students the oppor-

family to review (draw they have met before, apply their an inledge to new attactions, and learn to read De using in afficienties workbooks and story workbooks. The workbooks are written at three levels of difficulty and students are encouraged to work at the variest level. Questions most trequently asked by teachers about the program are answered in this gaide (Napor SA)

2605 ED 175 545 CSMP Mathematics for the Intermediate Grades Part III, Teacher's Guide. The World of Nambers. Experimental Version.

Certral Minwestorn Regional Educational Egypt St

Ann. M. ons. Agency. National Inst. of Inducation

PHE Washington, D.C.

Pun Data TS

Note: 48 Tp. For related documents, see SE 027

STS See Contains control charts and a fivities which have see terroid as well. Not available in Not promote r band costs due to copyright restrictions.

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ble from FDRS.

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This guide represents the final experimental version of a Mot project which was conducted in the Up ted States between 1973 and 1976. The ideas and the minner of presentation, we haved on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papsgrams') and models of our numeration system (the Papy "minico nputer") into the teaching of mathematics at the elementary and seconducty level in Beignern. This program follows the "Spiral approach." This guide reviews some basic numerical activities and introduces some new concepts. Topics included are composition, multiples and divisors, combinatories, the minicomputer, decimals, multiplication, fractions and division. The standard minicomputer moves are reviewed (tAuthor SAG

ED 175 644 CSMP Mathe v tics for the Intermediate Grades Part III, Teacher's Guide. The Languages of Strings and Arrows, Geometry and Measurement. Probability and Statistics. Experimental

Central Midwestern Regional Educational Lab., St. Ann. Mo.

pons Agency National Inst. of Education (DH) () Washington DC. יוזי וער ). Washington, D.C. Put Dat

Note 25 For related documents, see SF 027 876-891 ontains colored charts and activities which may not reproduce well. Not aveilable in hard copy due to copyright restrictions.

Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum Guides, \*Elementary School Mathematics, Gaines, Geometry, \*In-structional Materials, Intermediate Grades, Mathematical Logic, \*Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Rational Numbers, Statistics, Teaching Guides, Festbooks, Workbooks

Identifiers \*Comprehensive School Mathematics

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the Spiral approach." An explanation is provided of the languages of strings and arrows or classification and relations. This guide includes functions as well. The string game is presented as a means of using sets to stimulate logical thinking. Geometry, measurement, probability, and statistics comprise the latter half of the guide (Author SA).



2607 ED 175 643

Harry' Jim And Others

CSMP Mathematics for the Intermediate Grades Part III. Teacher's Guide (and) Worksheets. General Introduction, Workbooks, Experimental A CENIO 1.

Central Midwestern Regional Educational Lab , St Ann, Mo-

Spons Agency National Inst. of Education (DHEW), Washington, D.C.

Pun Date 78

382p.; For related documents, see NE 027 875-893. Not available in nard copy due to copyright restrictions, Contains colored charts and activities which may not reproduce well. Pub Type Guides - Classicion - Teacher (052)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum Guides, \*Flementars School Mathematics, Instructional Materials, In-termediate Grades, \*Mathematica, Logic \*Mathematics Curriculum, Mathematics Instruction, \*Number Concepts, Set Theory, Teaching Grades, Textbooks, Workbooks

Identifiers (\*Compreher sive School Mathematics Program

This guide represents the final experimental version of a pinit projectly high was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ("pups grains") and models of our numeration system (the Papy "minicomputer") into the teal hing of mathematics at the elementary and secondary level in Belgium. This program follows the "spital approach" Six workbooks are included which provide students with opportunities to review ideas they have met before, apply their knowledge to new situations, and learn to read by using mathematics workbooks and story-workbooks. The workbooks are written at three levels of difficulty and students are encouraged to work at the easiest level. Questions most frequently asked by feachers about the program are answered in this guide. (Author SAI

2608 ED 175 642 CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide [and] Worksheets. The World of Numbers, Experimental Version,

Central Midwestern Regional Educational Lab , St. Ann. Mo-

Agency National Inst. of Education Sports (DHEW), Washington, D.C. Pin Date

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Descriptors Addition, \*Arithmetic, Curriculum Guites, Decimal Fractions, Division, \*Flementary School Mathematics, Instructional Materials, Integers, Intermediate Grades, Mathematical Logic, \*Mathematics Curriculum, \*Mathematics Instruction, Multiplication, \*Number Concepts, Rational Numbers, Subtraction, Teaching Guides, Texthooks, Workbooks
Identifiers "Comprehensive School Mathematics

Program.

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams') and models of our numeration system (the Papy "minicomputer") into the teach a of mathematics at the elementary and secondary level in Belgium. This program follows the "Spiral approach." In this guide, there is a review of some hasic numerical activities which stem from the minicomputer. The standard minicomputer moves are reviewed. Several numerical games are given with the intention of providing a review of number on epts (Author SA).

2609 ED 175 641

CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide. The Languages of Strings and Arrows, Geometry and Measurement. Probability and Statistics. Experimental Version.

Central Midwestern Regional Educational Lab , St Ann. Mo-

Spots Agency National First of Education (DHEW), Washington, D.C.

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Pub Type Guides - Classroom - Teacher (1952) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

criptues \*Curriculum Goides, \*Elementary School Mathematics, Geometry, \*Instructional Materials, Intermediate Grades, Mathematical Logic, \*Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Rational Numbers, Statistics, Teaching Guides, Textbooks, Workbooks

Identifiers \*Comprehensive School Mathematics Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondury level in Belgium. This program follows the "spiral approach." An explanation is provided of the languages of strings and arrows or classification and relations. This guide emphasizes functions as well The String Game is presented as a means of using sets to stimulate logical th, king. Geometry, Measurement. Probability, and Statistics comprise the latter half of the guide (Author SA)

2610 ED 175 640 Harpel, Jim. And Others.

CSMP Mathematics for the Intermediate Grades Part II, Teacher's Guide. General Introduction. Workbooks. Experimental Version.

Centra Midwestern Regional Educational Lab., St. Ann. Mo.

Agency National Inst. of Education (DHEW), Washington, D.C. Pub Date

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tivities which may not reproduce well Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum Guides, \*Elementary School Mathematics, Instructional Materials, Intermediate Grades, \*Mathematical Logic, Mathematics Curriculum, \*Mathematics Instruction, Multiplication, \*Number Concepts, Teaching Guides, Textbooks, Workbooks

\*Comprehensive School Mathematics Identifiers Program

This guide represents the final experimental version of a pilot project which was conducted in the United States between 1973 and 1976. The ideas and the manner of presentation are based on the works of Georges and Frederique Papy. They are recognized for having introduced colored arrow drawings ('papygrams'') and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. This program follows the "spiral approach" Suggestions are given for obtaining materials for lessons. A Day-by-Day Guide suggests the organization of the material in an 18-week period. Three workbooks are included which provide students with individualized work. Two storyworkbooks are also included. The workbooks are written at three levels of difficulty and students are encouraged to work at the easiest level. Questions most frequently asked about the program by teachers are answered in this guide. (Author, SA).

FD 175 639 2611

Kuutmun Burt And Ottern CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide. General Introduction. Workbooks, Experimental Version.

Central Midwestern Regional Educational Lab., St. Ann, Mo-

Spons Agency National i (DHFW) Washington, D C Pub Date 76 linst of Education

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Pah Type - Guides - Classinom - Teacher (952) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum Development, \*Curriculum Guntes \*Unmentary School Methematics, \*Instructions Materials, Intermediate Grades, \*Mathematics Curriculum, Mathematics Instruction \*Number Concepts, Teaching Control Locks in the Workshop Concepts. instruction Number Contests, redening Courses, Textbooks, Workbooks leatifiers \*\*Comprehensive School Mathematics

Identifiers

This golde represents the small experimental version of an extended pilot project which was con-ducted in the Unite I States between 1973 and 1476 The manner of presentation and pedagogical ideas and tools are based on the works of George and frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrains'') and models of our numeration system (the Paps "iningomputer") into the teaching of mathematics at the elementary and secondary level in Belgium This program follows the "spiral approach" imphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information. Suggestions are presented for obtaining and preparing materials for lessons. Some are available from CSMP. The seven books of the Teacher's Guide for this level are bound into three volumes. This volume contains the General Introduction and the six workbooks, (Authat SAI

ED 175 638 CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide. The Languages of Strings and Arrows. Geometry and Measurement. Probability and Statistics. Experimental

Version. Central M.dwestern Regional Educational Lab., St Ann, Mo-

pons Agelicy National Inst. of Education (DHEW), Washington, D Cub Date 76 Pub Date

Note 265p. For related documents, see in 875/893. Not available in hard copy due to copy-263p. For related documents, see SF 027

tivities which may not reproduce well Pub Type Guides (Classroom - Teather (052) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Curriculum Development, riculum Guides, \*Elementary School Mathematics, Games, Geometry, \*Instructional Materials, Intermediate Grades, \*Mathematics Curriculum, Mathematics Instruction, Measurement, Probability, Statistics, Teaching Guides, Textbooks,

Identifiers

This guide represents the final experimental version of an extended pilot project which was con-ducted in the United States between 1973 and 1976. The manner of presentation and the pedagogical ideas and tools are based on the works of Georges and Frederique Papy. They are recognized as having introduced colored arrow drawings ('papygrams") and models of our numeration system (the Papy "minicomputer") into the teaching of mathematics at the elementary and secondary level in Belgium. The CSMP curriculum follows the "spiral approach." The series emphasizes that a topic may provide children with intuitive leaps which might help them acquire successive pieces of information An introduction is given to the Language of Strings and Arrows. In the String Game, students are to deal with divisors of numbers. A chapter on logical thinking deals with precise terms in English used to discuss statements concerning various sets. Composition Gaines reiterates what the students ex-perienced earlier in CSMP Geometry and Measurement and Probability and Statistics are other topics within the guide (Author SA)



2613 FD 175 637 CSMP Mathematics for the Intermediate Grades Part I, Teacher's Guide [and] Worksheets. The World of Numbers, Experimental Version,

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2614 FD 174 198 Blatte Love And Other

Mathematics for the Elementary School, Grade 6. student's lext, Part II, Unit No. 34, Revised

Stantistic Cities (Cauli School Mathematics Study of France)

Spens Agency N Washington Dic Pib Date (62) National Science Foundation,

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Describers Curried um. Devision hiementary busided in "Flementary School Mathematics, brast one. "Geometry, Grade 6, "Graphs, "historian Mathematics Education, "Number Concepts Set Theory "Feetbooks lidentifiers. "School Mathematics Study Group This 8 part two of a two part SMSG elementary.

sub-matery for sixth-grade students. The content is aimed at the development of some of the fundamental converts of mathematics such as number, numerstion, the operations of archimetic, and intuitive ecometry. Chapter topics include division of ra-tional numbers, volume, organizing and describing data, in fisets and circles. (MP)

2615 ED 173 1:4 Beatty Leidie and Other

Mathematics for the Elementary School, Grade 5, Student's Text, Part II, Unit No. 30, Revised Edition.

have Caut School Mathematics Study Group

Spring Agency National Science Foundation, Washington D.C. Pho Date: 62

Note: 388p. For related document see M 927, 920. Contains occasional light and broken one Pub Type Gaides - Classissim - Learner (051) EDRS Price MF01 PC14 Plus Postage.

Descriptors Curriculum, Elementary Education, \*Elementary School Mathematics, \*Fractions Cracle 5 \*Instruction Mathematics Education. \*Measurement, \*Number Concepts, Ratios (Mathematics), \*Testhooks I fertifiers Area, \*School Mathematics Study

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Mathematics for the Flementary School, Grade 5, Student's Text, Part 1, Unit No. 29, Revised Edition.

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pome Name ( ) Washington Die 50.00 Self-response such as a second particle. Pub Date (62)

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EDRS Price MF01 PC11 Plus Pustage.

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conditatibe development of some of the tipul ones ta a curity i mathematics such as minher number at one the operations of arithmetic and obtained geometry. Chapter topics include extending systems of comeration, factors and primes extending multiplication and division, and is returned to commish zeometric figures (MP).

2617 ED 173 102

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Mathematics for the Elementary School, Grade 4, Student's Text, Part II, Unit No. 26 Revised Edition.

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Spens Agency National Science Four family Pun Date: 62
Note: 271n: 3 related document see 81: 327

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Pub Type Guaco - Classroom - Learner (185)
EDRS Price - MF01 PC11 Plus Postage.
Descriptors Carriculum, Flementary Education,
\*Elementary School Mathematics, \*Geometry. Grade 4, \*Instruction, Mathematics Education, \*Measurement \*Number Concepts, \*Texts oksluentifiers, Number Operations, \*School Mathematics Number Operations, \*School Mathemat matics Study Group

This is part two of a two-part SMSG elementary school text for fourth-grade students. The content is sime fat the development of some of the fundamental concepts of mathematics such as number, numeration, the operations of arithmetic, and intuitive geometry. Chapter topics include properties and techniques of addition and subtraction, techniques of multiplication and division, recognition of comfrom geometric figures, linear measurement, and concept of rational numbers (MP)

2618 ED 173 101 Beatty Leville And Others

Mathematics for the Elementary School, Grade 4, Student's Text, Part I, Unit No. 25, Revised Edition.

Stanford Univ., Calif. School, Mathematics Study Group

Spots Agency National Science Foundation, Washington, D.C.
Pub Date: h2
Note: 210p., For related document, see SE 027
409

Gurdes - Classroom - Learner (051) EDRS Price - MF01 PC13 Plus Postage.

Descriptors Curriculum, Elementary Education, \*F.cmeniars School Mathematics, \*Geometry, Grade 4, \*Instruction, Mathematics, \*Geometry, Grade 4, \*Instruction, Mathematics Education \*Number Concepts, \*Set Theory, \*Textbooks Identifiers Number Operations, \*School Mathematics Study Group

This is part one of a two-part SMSG elementary school text for fourth-grade students. The content is aimed at the development of some of the fund imental concepts of mathematics such as number, numeration, the operations of cothmetic, and infustive geometry. Chapter topics in Jude concept of sets, currenation, properties and techniques of addition and subtraction, properties of multiplication and division, and sets of non-ticl. Att-

2619 J.D. 105 0-3 Mathematics for Georgia Schools, Volume II: Upper Elementary Grades.

Georgia State Dept. C. Famarios, A. Seta Office of Instructional Services

Pub Date 13

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FD 162 883

Mathematics for the Elementary School, Grade 6, Teacher's Commentary, Part 11, Unit 36, Revised Edition.

Stanford Low Coast, school Mathematics, Study in our

Spotis Agency National Sile ce Foundation Washington, D C Pub Date **^**5

Note: 4355. For related documents, see SE-028. 581-588. Coptains occasional biarred point Pub Type Guides - General 1050s.

EDRS Price - MF01 PC18 Plus Postage.

Descriptors hierentary Education, \*Liemes has School Mathematics, \*Geometric Concepts, School Mathematics, "Cocometric Conceris, "Crade S, "Instructional Materials, Mathematics Materials, "Number Concepts, Rational Num-ters, Set Theory, "Learning Guides Identifiers, "School Mathematics Study Group, Concerts

Volume

This book is part 2 or a 2-part manual for reachers using SMSG text materials for grade 6. The purpose for each of 5 chapters is stated and mathematical hackground for the teacher is presented. Detailed esson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and viscabiliary are listed. Chapter topics include. (I) division of rational numbers, (2) volume, (3) organizing and describing data. (4) sets and circles, and (5) a re-

2621 ED 162 882

Beatty, Leslie And Others

Mathematics for the Elementary School, Grade 6, Teacher's Commentary, Part I, Unit 35, Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date: 65

518p. For related documents, see SE 025. Note 581-384. Contains occasional light and broken

Pub Type Guides - General (1181) EDRS Price - MF02 PC21 Plus Postage.

Descriptors Elementary Education, \*I lementary School Mathematics, \*Geometric Concepts, \*Grade 6, \*Instructional Materials, Integers, Mathematics Materials, \*Number Concepts, Rational Numbers, \*Teaching Guides

Identifiers \*School Mathematics Study Group This book is part 1 of a 2-part manual for teachers using SMSG text materials for grade 6. The purpose

tor each of 5 chapters is stated and mathematical background for the teacher is presented. Detailed esson plans are their provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulars are listed. Chapter topics include. (1) exponents. (2) multiplication of rational numbers, (8) side and angle relationships of triangles, (4) integers, and (5) coordinates (MN)



2622

Beatty Leville And Others Mathematics for the Elementary School, Grade 4, Teacher's Commentary, Part II, Unit No. 28.

Revised Edition. Stanford Univ., Calif. School, Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 65. Note 445p., For related documents, see SE 025-381-384, Contains occasional light and broken too.

Pub Type Guides - General (050)

EDRS Price - MF01 PC18 Plus Postage.

Descriptors Elementary Education, "Elementary School Mathematics, "Geometric Concepts, "Grade 4, "Instructional Materials, Mathematics Materials, Measurement, "Number Concepts, Rational Numbers, "Teaching Guides Identifiers, Number Concepts, Number Concepts, Rational Numbers, "Teaching Guides

identifiers. Number Operations, \*School Math-

ematics Study Group

This book is part 2 of a 2-part manual for teachers using SMSG text materials for grade 4. The purpose for each of 5 chapters is stated and mathematical for each or 2 enapters is stated and mathematical background for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary sre listed Chapter topics include (1) addition and subtraction, (2) multiplication and division, (3) common geometric figures, (4) linear measurement, and (5) rational numbers (MN)

2623 ED 162 880

Beatty, Leslie And Others

Mathematics for the Elementary School, Grade 4, Teacher's Commentary, Part I, Unit No. 27. Revised Edition.

Stanford Univ. Calif. School Mathematics Study

Stational Cris Call School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 62

Note 501p., For related documents, see SE 625

182-384 Contains light and broken type

Pub Type Guides - General (1980)

EDRS Price - MF02 PC21 Plus Postage.

Descriptors Elementary Education, \*Elementary School Mathematics, \*Geometric Concepts, \*Grade 4, \*Instructional Materials, Mathematics Materials, \*Number Concepts, Set Theory, \*Tribotopic Concepts, Set Theo \*Teaching Guides

Number Operations, \*School Math-Identifiers

ematics Study Group

This book is part 1 of a 2-part manual for teachers using SMSG text materials for grade 4. The purpose for each of 5 chapters is stated and mathematical hackground for the teacher is presented. Detailed lesson plans are then provided, including sequences of statements and questions, activities, and exercise sets with answers. Needed materials and vocabulary are listed. Chapter topics include: (1) concept of sets, (2) numeration, (3) addition and subtraction, (4) multiplication and distrion, and (5) sets of points (MN)

2624

Brutty, Lesize And Others

Mathematics for the Elementary School, Grade 5, Teacher's Commentary, Part 11, Unit No. 32. Revised Edition.

Stanford Univ. Calif. School Mathematics Study Group

Oroup Spons Agency National Science Foundation, Washington, D.C. Pub Date 62 Note: 482p. For related documents, see SE 023

139-143

139-143
Pub Type Guides - General (080)
EDRS Price - MF02 PC26 Plus Postage.
Descriptors Curriculum Guides, Element and Carlon, "Elementary School Mathematics and S. Instruction, "Instructional Materials, "Lesson Plans, Mathematics Education, "Number Concepts, "Teaching Guides Identifiers "School Mathematics Study Group This guide for teachers using the SMSG text

This guide for teachers using the SMSG text materials for grade 5 considers four chapters on addition and subtraction of rational numbers, measurement of angles, area, and ratio, plus a review of the fifth-grade program. The objectives or purposes for each unit are given, followed by mathematical nackground. Detailed lesson plans are then prosideal, including sequences of statements and ques-tions, activities, and exercise sets with answers

MS

ED 162 881

ED 144 833

Beatty, Leslie And Others

Mathematics for the Elementary School, Grade 5. Teacher's Commentary, Part I, Unit No. 31, Revised Edition.

Stanford Univ., Calif. School, Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date: 62

. do Dale - 62 Note - 463p . For related documents, see SE 023 [40-]43

Pub Type Guides - General (050) EDRS Price - MF01 PC19 Plus Postage. Descriptors Curriculum Guides, Elementary Edu-

cation, \*Elementary School Mathematics, Grade 5, Instruction, \*Instructional Materials, Lesson Plans, Mathematics Education, "Number Concepts, "Teaching Guides

Identifiers \*School Mathematics Study Group In this guide for teachers using the SMSO text materials for grade 5, five chapters on numeration systems, factors and primes, incitiplication and division, and congruency of geometric figures are considered. The purpose is stated for each unit and mathematical background for the teacher is presented. Teaching procedures are then detailed through specific activities, statements, questions, and anticipated responses. Exercise sets and answers are also included. (MS)

Rogen, Sundra

Laboratory Mathematics, Booklet 8 - Math Lab Activities.

Anderson County School District 2, Hopea Path, SC

Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, DC

Pub Date 177 Note 111p. For related documents, see SE 022 692-698. Not available in hard copy due to marginal legibility of original document up Type Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Availa-

EDRS Price - MF01 Plus Foregastionally Disadvantaged, \*Elementary School Mathematics, Elementary Secondary Education, Experiential Learning, \*Fundamental Concepts, Individualized Instruction, \*Instructional Materials, Laboratory Procedures, \*Low Achievement, \*Units of Study Laboratory Procedures, \*Low Achies Mathematics Education, \*Units of Study

Identifiers Elementary Secondary Education Act Title III

This math lab activities booklet accompanies a teacher's management guide and a set of five book-lets which comprise the basic curriculum for "Mathematics Laboratories for Disedvantaged Students," a nationally validated Title III ESEA project. The materials in this bulletin are designed to serve as the core of the laboratory curriculum. Over 150 activities that emphasize a variety of skills are included (RH)

ED 119 994

Mathematics Guide K-8.

Del Mod System, Dover, Del , Seaford School Distri t. Del

Spons Agency National Science Foundation, Washington, D.C. Report No. NSF-GW-6703. Pub Date Jun 74

143p.

Available from Mr. John F. Reiher, State Supervisor of Science and Environmental Education, Dept of Public Instruction John G. Tor usend Building, Dover, Delaware 19901 (Free while supply lasts:

ype - Guides - General (050)

EDRS Price - MF01 'PC06 Plus Postage.

Descriptors - Basic Skills, Curriculum, \*Curriculum Guides, \*Elementary School Mathematics, Elementary Secondary Education, \*Geometric Concepts. Instruction, Learning Activities, Mathematics Education, "Number Concepts, Objectives, "Secondary School Mathematics,

Teacher Developed Materials
Identifiers \*Del Mod System, National Science Foundation

This mathematics curriculum guide for grades K-8 was developed and evaluated by teachers in the Seaford School District, Delaware. It sets out concepts and skills to be mastered at each grade level. Suggested learning activities are described for each cur-

ricular objective identified. The curricular topics addressed include number concepts, operations, and relations, geometric concepts, money and time, partern recognition, and measurement (SD)

2628 Mathematics: Activities That Work.

Virginia State Dept of Education, Richmond, Div of Elementary Education

Pub Date 75 Note 67p. For Reading Program in Series, see UD 015 747, For Supplemental Skot Development Program Handbook see UD 015 749

Pub Type Guides - General (180)

EDRS Price - MF01 PC03 Plus Postage.
Descriptors \*Diagnostic Teaching, Elementary Education, Fadure, Grade 5, Grade 6, \*Individuaalized Instruction, "Learning Activities, "Mathematical Concepts, Mathematical Enrichment, Mathematics Education, Mathematics Instrucnon, Mathematics Materials, Parent Participation, \*Underachievement Identifiers Supplemental Skill Development Pro-

gram, Virginia (Richmond)

This demonstration project provides intensive instruction in reading and mathematics to selected fifth graders in the 1974-75 year and for selected fifth and sixth graders in 1975-76 in order to raise the reading and mathematics performance of underachievers to a level commensurate with meaared ability. The sharing of learning activities in mathematics, which teachers have found effective or an ferachievers, is the main purpose of this res aree. The document supports the theory that a so nd curriculum in mathematics for elementary schools is characterized by both mathematical concent and an approach to teaching consistent with the s, available knowledge of learning in children. Its ma. Tooks is on activities used in teaching children above operations on whole and fractional numbers The carning activities included give instructional suggestions for each of the 35 minimal objectives specified for the program. The importance of the teache recognition of tour types of errors is emphase 1. for eventual diagnosis and remediation of failure 12-ref guidelines for both diagnosis and remediation are provided. Also ordered are some suggest. methods of motivating low-achieving pupils, namely, extrinsic and intrinsic motivators The importance of record keeping in individual and instruction is also stressed and forms included nere facilitate the individual monitoring of pupil p.ogress (Author AM)

ED 104 728 Conceptually Oriented Mathematics Program. [

intermediate-Upper Levels].

Columbia Puba, Schools, Mo Spons Agency Bureau of Elementary and Secondary Education DHEW OE), Washington, D.C. Pub Date 73 Note 537p. Best Copy Available, Occasional

Marginal Legibility See SE 019 046 for Primary-Intermediate Levels

Pub Type Guides - General (65) EDRS Price - MF02 PC22 Plus Postage.
Descriptors \*Behavioral Objectives, \*Curriculum Guides, Elementary Education, \*Elementary School Mathematics, \*Instructional Materials, \*\* \*Lesson Plans, Mathematics Education, Teacher Developed Materials, Tests, Worksheets

Identifiers Elementary Secondary Education Act Title III

This is a collection of the last 12 units (intermediate-upper levels) of materials designed for the Coreceptually Oriented Mathematics Program (COMP) The program is intended to diagnose student difficulty, provide a prescriptive program of improvement, and meet individual needs through small-group instruction. Content has been organized into 11 broad concept areas, sets, numerals, order, addition, subtraction, multiplication, division, functions and graphs, geometry, measurement, and number sentences and phrases. These areas are then fitted into 25 vertical levels, each level having two or more steps. The material actually contained here is a collection of lesson outlines covering most concept areas at most levels. Each lesson has the following format concept area, behavioral objective, mathematical ideas, vocabulary, activities, references, and worksheers. Teaching aids are also suggested (LS)



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Conceptually Oriented Mathematics Program. Primary-Intermediate Levels).

Cirumnia Public Schools, Mi

Spons Agency Bureau of Elementary and Second-ary Education (DHFW OF) Washington, D.C.

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For live - Guides Concra in Soc FDRS Price - ME03 PC25 Plus Postage. Des rim es "Bers i esta Orbections "Concration to idea - Emmutary Education "Empropriary School Machematics "Instructional Malor its "Lesse Pairs Mathematics his car in the Con-lesse per Mathematics Less Worksheeps Lesse per Mathematics Less Worksheeps Lesse - Emmoting School Mathematics Lesses Worksheeps Fair this of Europeanics Section at a Charle Brown No. 2 of the Util

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ED 1004 998

Marita Wash RA

Mathematics for the Elementary School, Unit 17, Addition and Subtraction in Squareville.

Minnesota Unio Minneapolis Minnesota School Mathematics and Science Center

sports Azerta v. Netional Science Foundation, Washington, D.C. Tun Date Ins

suggested of Si-

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Por Erbe Guides General (1986)
F DRS Price - MF01 PC03 Plus Poscage.

Descriptors "Addition, Corneculum, "Elementary School Mathematics, Esperiential Learning, Corollis Instruction, "Instruction, Materials Nonrer Concepts, "Subtraction, Symmetric, "Foaching Guides, Units of Study, Worksheets Identifiers, MINNEMAST, "Minnesota, Mathematics of Science Teaching Projects ematics and Science Teaching Project

The Minnesota School Mathematics and Science Teaching (MINNEMAST) Project is characterized by its emphasis on the coordination of mathematics at a science in the elementary school curriculum tools are planned to provide children with activities m which they learly various concepts from both subcut areas. Each subject is used to support and reinforce the other where appropriate, with common techniques and concepts being sought and expooted. Coment is presented in story fushion. The stories serve to introduce concepts and lead to ac-Livities. Imbedded in the pictures that accompany the stories are examples of the concepts presented This unit provides students with a graphic method of addition which is useful both as a checking device and as an advance in what the student did in Unit the Three different techniques of using graphs and their factors for iddition are presented. This apprior himtegrates ideas of geometric symmetry and with number relationships under addition and subtraction. Worksheets and commentaries to the teacher are provided and additional activities ary suggested d'Pr

ED 094 993

Clark, John, Ed. Mvers, Donald E. Ed. Mathematics for the Elementary School, Unit 15, Addition and Linear Translations.

Minnesota Univ., Minneapolis, Minnesota School Mathematics and Science Center-Spons Agency National Science Form fation,

Wisnington DC Pub Date 65

Note 1415

Pub Type | Charles - General (050)

EDRS Price - ME01 PC06 Plus Postage. Descriptory "Addition Correlator" Elementation School Mathematics, Expenentia Learning \*Georgettic Concepts, instruction: \*Instructional Materials Number Concepts Subtraction Teaching Guides Units of Study Worksheets Identifiers MINNEMANT "Minnesota Mari ematics and Science Teaching Project, Moda at Virthmetic

The Minneson, School Mathematics and Science to Rhine (MINNEMAST) Project is a maracter and by its emphasis on the conditionation of mathematics the grade of the elementary school of Conts are planned to provide children with activities (i) It safe pullings is only size contact. The open size in which they learn contains concepts to an near size extractor. But no support is used to support and the open size of the open size. Co. Notice and Survey of S stonies serve to introduce concepts, and lead to acto ties imbedded in the pictures that accompany the stories are examples of the concepts presented The common to be set to concept of a ray more week to be to be a case in concept of a ray more week to be few on containing and a shift a containing the my of rected sea ments. There are a sweek exercises ending to the concept of place value and kink with modular arithmetic. Geometric converts are ex-ported through examining scales on intersect neural ratage, lines. Worksheets and commontaries to the teacher are previded and additional activities are suggested (CP)

2633 ED ONG GRY Mathematics Grades 4-6: A Teacher's Guide. Buthus Public Schoots N. Y. Div. of Curres some

Evaluation and Development Pun Date - 68

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Course Content, Curry vicin Curry real im Guides, \*Flementary School, Mathematics, \*Instructional Materials, Teaching Guides

This carriculum guide presents the outlines tocourse content in mathematics in groups 4th Por rath grade level general interviews are given in the 70 hs and objectives of the course. A detailed explicilation of the content outline includes suggestions as to method of presentation. The mathematical con cepts are explained using a technically correct poproach. This is intended primarily for the tone of \$1. that the foundations she hinlds with the informal way are based on sound. amatical principles, (IP)

 $FD \oplus$ Mathematics Curriculum Guide for Grades 6,7,8. Johnt Public Schools, III School District 86 Pub Date Since 640

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Algebra, "Curriculum, "Curriculum Guides, "Elementary Schools Mathematics, Geometry, Junior High Schools, "Mathematics, \*Middle Schools, Number Concepts, Teaching Guides

This curriculum guide outlines the mathematical content which whould be presented in grades 6. and K - the new middle school organization. It is the result of a study made by a committee of principals and teachers of the needs and characteristics of adolescents. The following are included for each of the content areas (1) topics a high may be studied. (2) skills, (3) concepts, (4) application, (5) suggestions for implementation, and (6) helpful material and references. The mathematical content is conlained within the conventional junior high school curriculum number concepts, sets, algebra, geometry, statistics and probability, and nun and trigo-nometry. Also included are the objectives and philosophy of the school system (RS)

2635 ED 052 969

Glad some, Blanche C And Others Mathematics, Grade 6, Scope and Sequence. New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development

Report No Curric Bull-4 Pub Date 71

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Available from New York City Board of Edication, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 (\$1.00) EDRS Price - MF01 Plus Postage Pr. Not Avaira ble from FDRS

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110-14-5 Mathematics, Grade 4, Grade 5, Scope and Se-

quence.

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EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

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2637 10004898 Mathematics Grade 5. Curriculum Bulletin. 1968-69 Series, No. 18.

New York City Beard of Fault 1986 Brown 1988 Bureau of Cornelisan Development

Pub Date 64 Note 576p

Assilable from New York Cov Board (1970), from Publications Sales Office, 120 Europester, Street, Brooklyn, New York (120, 188), 68

EDRS Price - MF06 Plus Postage, Pf. Not Available from EDRS.

Descriptors Arithmetic "Curriculum Occupan-

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bis curriculum bulletin is one of a plantied series hulletins designed to preet the needs of reachers of bulletins designed to meet the needs of reachers and supervisors who are working to improve my achievenient level of matrix nature in the schools. The eighty sequential units of this bulletin larger ganized into 3 categories (1) Sets number and numeration, (2) Operations, and (3) Geometry and measurement. A "Note to Teacher 1s included in supersylvation for his matrix of the numbers to rose to the finite of the control of the numbers to rose to the finite of the control of the numbers to rose to the finite of the control of the numbers to rose to the finite of the control of the numbers to rose to the finite of the numbers to rose the numbers to ros several of the units to provide further clarification or mathematical concepts connected with the unit and for to understand reasons for the developments material. This bulletin is designed to provide arrow lation with Grade 4 mathematics and with the mitnematics of Grades h. 7, and 8. This publication is the last of a four year sequence in Intermediate Notice Mathematics based on their phiasophy of what should and can be taught in Grades 5 through N (R-C)

1:10 (025 42)

Mathematics, Grade 5 Part 1.

New York City Board of Education, Brooklyn, N. 5 Bureau of Curriculum Development

Pub Date 66 Note 320p

Available from New York City-Board or Education, Publications Sales Office, 110 Lavingsto-Street, Brooklyn, New York 11201 (\$2.60)

EDRS Price - MF02 Plus Postage, PC Not Available from EDRS.

Descriptors Algebra, Course Content, Toyle pescriptors Augenta, Course Content, Con-niculum, Curriculum Desciopment, Curva dam Gindes, "Elementary School Mathematics, Geometry, Grade S, "Mathematical Concepts, "Mathematics, Number Concepts, "Leaching



Guides

Identifiers-New York, New York (New York) This curriculum bulletin is one of a planned series of bulletins designed to meet the needs of teachers and supervisors who are working to improve the achievement level of mathematics. The materia, has been planned to help teachers meet the diverse mathematical needs of the children in fifth-grade classes. In addition to the emphasis that is always placed on arithmetic computational skills, this bulletin shows how to include other areas considered important, such as concepts, skills, and ideas from algebra and geometry. The 80 units of this bulletin are organized into three categories: sets, number. numeration; operations, and geometry and measurement. The units are sequentially planned and follow a spiral pattern. Objectives for each unit are stated. This is the first part of a two part bulletin for Grade 5. (RP)

ED 023 600

Mathematics, Grade 5, Part 2. New York City Board of Education, Brooklyn, N.Y. Pub Date 66 Note-270p.

As allable from New York City Board of Educa-tion. Publications Sales Office, 110 Livingston Street. Brooklyn. New York 11201 (\$2,00). EDRS Price-MF01 Plus Postage. PC Not Availa-

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ble from EDRS.

Descriptors—Algebra, "Arithmetic, Course Content, "Curriculum, "Elementary School Mathematics. Fractions, Geometry, Grade 5, Instruction, Learning Activities, Mathematical Concepts, "Mathematics, Number Concepts, "Feaching Guides
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This curriculum bulletin is designed to help teachers meet the diverse needs in mathematics of the children in fifth grade classes. In addition to the emphasis that is placed on arithmetic computational skill, the bulletin shows how to include other areas considered important, such as concepts, skills, and ideas from algebra and geometry. The 80 units of the builetin are organized into the following categories. (a) sets, number, numeration; (b) operations; and (c) geometry and measurement. The units are sequentially planned and follow a spiral pattern. (RP)

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2700 1.10 176 455 Experimental Units for Grades Seven and Eight. Stanford Univ. Calif. School Mathematics Study Acres 140

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Pure Date 189 Note: 1976 Contains occasion is lebt and broken

Type Guides Classing the Learner (187) EDRS Price - MF01 PC12 Plus Postage.

Descriptors Curry main, Decimal Fractions, Fractions, \*\*Crometry Grade \*\* Grage 8, \*\*Instruction "Mathematical Applications, Mathematics Infla-cation Measurement, "Samber Concepts, Proba-Successful Secondary Education, \*Secondary School Mathematics, Statistics, \*198 theory Identifiers - \*Nebook Mathematics Study Creeds

This is an experimental SMSC mathematics text that are in high school students. Key ideas empirasized are structure of arithmetic from an electric s capout the real number system is a progressing tese options is a metric and non-matrix relations. mathematics, decimal and non-decimal numeration the out it is no obets and retire tax toring and primes. divisions, unsigned rationals, populative geome-The mass remont informal geometry approxima-tion, the lever statistics change, and finite it afficiliation systems (MP)

2701

ED 176 953

Indonesia K. D. Ind Others

Mathematics for Junior High School, Volume II (Part 2).

Stanford Univ. Calif. School Mathematics Study Cross v

Spins Agency N Wishington, D.C National Science Foundation Pun Date 6

site (284p). For related documents see SF 627 929023 and FD 130 878. Contains occasional light and broken type.

P.S. Type - Guides - Classify and Communication EDRS Price - MF01 PC12 Plus Postage.

\*\*Geometry: \*\*Instruc-

tion. Mathematics Education, "Number Systems, \*Probability, Secondary Education, \*Secondary School Mathematics, \*Textbooks Lientifiers, \*School Mathematics Study Group

This is part two of a two-part SMSG mathematics text for junior high school students. Key ideas emon isided are structure of arithmetic from an alge-The responsition real number system is a progress of development, and metric and moments of relations in geometric Chapter topics include real numbers, similar triangles, variation, non-mertal polyhedrons, volumes and sarrace areas, relative error, permittations and combinations, and probahibits. Slight revisions are contained in a later editrio (NtP)

2702

ED 176 957

And run R. D. And Others

Mathematics for Junior High School, Volume II · Part 1).

Stanford Univ. Calif. School, Mathematics, Study Croup

Sports Agency National Science Foundation, Wishington, D.C. Pub Date - 59

Gote 155p. For related documents, see SE 627 920-923 and ED 130-874. Contains occasional Norte. aght atta broken type.

pur Type - Guides - Classroom - Learner (051) EDRS Price - MF01 PC07 Plus Postage. Descriptors - Congruence, Curriculum, - Geometry - Instruction, Mathematical - Applications. Mathematics Education, "Number Concepts, Percentage, Secondary Education, "Secondary School Mathematics, "Fextbooks Identifiers, "School Mathematics Study Group

This is part one of a two-part SMSG mathematics text for iumor high school students. Key ideas emphasized are structure of arithmetic from an algebrail viewpoint, the real number system as a progressing development, and metric and non-inertic relations in geometry. Chapter topics include number one and coordinates, equations, scientific

to dation, applications of percent, and congruence and the Pythagorean property. Slight revisions are ontained in a later edition (MP)

2703

110 176 181

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Indicion K. D. Ind Others Mathematics for Jenior High School, Volume 1 (Part 2).

Stanford Unix Calif. School. Mathematics, Study

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Note: 2.00p. For colated disconcrets, see SI 1027 527-928 and ED 180 871, Contains occasional ent and broken type 8 Type - Orides - Classionin - Learner 1978 ()

EDRS Price - MF01 PC12 Plus Postage,

Descriptors Carticulum, "Fractions, "Geometry "Instruction, Mathematica, Applications, Math-29 atics Education, Secondary Education, "Secondary School Mathematics "Shatistics \*Textbooks

Identifiers "School Mathematics Study Group Identifiers: \*Nebood Mathematics Status visions: It is part two of a two part SMSG mathematics for the remove high school students. Key ideas empty seed to extra the transfer as the end of arithmetic from in age to the Assertion to the fact mathematics system as a Progressing development, in dimetic, and rainsmetthe foliation with geometry. Chapter to be sinclude the rational number system picallels, parallelograms, transfer, and right prisms encies, statistics and graphs mathematical systems, and mathematics at work in science. Slight revisions are contained in a later edition. (MP)

Bell, Max S. Ina Otners Secondary School Mathematics, Preliminary Version. Sample Chapters.

Stantord Univ. Calif. School Mathematics Study

Spons Agency N Washington, D ( National Science Foundation, Pub Date 69

Note: 47hp. Not available in hard copy due to marginal legibility of original document

ab Type Guides - Classioom - Learner (081) EDRS Price - MF01 Pius Postage, PC Not Available from EDRS.

Descriptors Curriculum, Flow Charts, \*Geometry, \*Instruction, \*Mathematical Applications. Mathematics Education, Probability, Secondary Education, Secondary School Mathematics.

\*Textbooks Identifiers \*Functions (Mathematics), \*School Mathematics Study Group

This volume contains preliminary versions of five of the chapters prepared by the SMSO curriculum project for use in grades and 8. The first four chapters and fine tenth chapter in the sequence are presented. The sample chapters in this volume illustrate a number of aspects of the curriculum project (1) association of ideas of number and space through coordinate geometry, (2) early introduction of the furction concept, (3) development of flow charts and Ago others as an introduction to the role and use of computers in modern society, (4) attention to the mathematical models for physical smeations, ind (5) introduction of concepts of prinability (MP)

2705

ED 173 137

Anderson, R. D., And Others Mathematics for Junior High School, Commentary

for Teachers, Volume II (Part 3). Preliminary Edition. Stanford Univ., Calif. School Mathematics Study

Group National Science Foundation,

Spains Agency S Washington, D.C. Pub Date 60

fote 76p. For related documents, see 8F 027 968,966 and ED 130,877. Contains occasional light and broken type
Pub Type Guides - Classroom - Teacher (182)

EDRS Price - MF01 PC04 Plus Postage.

Descriptors Curriculum, \*Curriculum Guides, \*Geometry, \*Instruction, Juntor High Schools, Mathematics F lucation, \*Measurement, Secondary Edication, \*Secondary School Mathematics, \*Solid Geometry Identifiers \*School Mathematics Study Group

This is part three of a three-part manual for tenchets using SMSG junior high school text materials Fach chapter contains an introduction and a collection of sample test questions. Fach section contains a discussion related to the topic at hand and answers to all the exercises. Chapter topics include all monmetric geometry, (2) volumes and surface areas (3) the soften and (4) relative error oxith-

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macrom R. D. And Opens Mathematics for Junior High School, Commentary for Feachers Volume II (Part 2). Preliminary Edition.

Stanford Univ. Cald. School, Math. matr. 8 Stary Corner

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Teacher to Sh EDRS Price - MF01 PC05 Plus Postage.

Descriptors Congruence, Carrientam, \*Con-ticulem Gordes, \*Geometry, \*Instruction James High Schools, Mathematics I shearton, \*Number Concepts, \*Probability Secondary I sucation \*Secondary School Mathematics, Sympletics

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of the exercises. Chapter tops, ome aide of his minetis congruence, and the Pythagorean Property (2) real numbers (1) permutations and selections, (4) mobability, and (5) sum for triangles and variation However, some pages from the third chapter and most of the fourth chapter are missing (MP)

ED 173 135

Ander on R. D. And Others Mathematics for Junior High School, Commentary

for Teachers, Volume II (Part 1), Stanford Univ. Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D C

Pub Date 60 Note 152p; For related documents, see SE 027

969-970 and ED 130 876, Contains occasional aht and broken type.

Pub Type Guides - Classroom - Leacher (052) EDRS Price - MF01 PC07 Plus Postage, Descriptors Curriculum, Curriculum Guides,

Decimal Fractions, Fractions, \*Coronetry, \*In-struction, Junior High Schools, Mathematics Education, \*Metric System, \*Number Concepts, Secondary Education, \*Secondary School Mathematics

Identifiers "School Mathematics Study Group

This is part one of a three-part manual for teachers using SMSG junior high school text materials. Fach chapter contains an introduction and a collection of sample text questions. Each section contains a disscussion related to the topic at hand and answers to all the exercises. Chapter topics include. (1) rational trimbers and coordinates, (2) equations, (3) scientitle notation, (4) decimals, and the metric system, and (5) drawings and constructions (MP)

2708

ED 173 134

Anderson, R. D., And Others

Mathematics for Junior High School, Supplementary Units. Commentary for Teachers

Stanford Univ. Calif. School Mathematics Study Group

Spons Agency N Washington, D.C. National Science Foundation,

Pub Date 60 Note 62p, For claird documents, see 8h 627 963-966 and FL 14 530 Contains oc associal light and broken type

Pub Type Guides Classroom - Teacher (052) Pub Type Guides Classicini, EDRS Price • MF01 PC03 Plus Postage, Descriptors Curriculum, \*Curriculum Guides,

Descriptors Curriculum, \*Curriculum Guides, Decumal Fractions \*Geometry, \*Instruction, Mathematics Education, Number Concepts, \*Prime Numbers, Secondary Education, \*Secondary School Mathematics, \*Set Theory Identifiers \*School Mathematics Study Group

This is a supplementary manual for teachers using SMSG junior high school text materials. A chapterby chapter commentary on the text is given as well as answers to all the exercises. Chapter topics include (1) sets, (2) projective geometry, (3) repeating decimals, (4) tests for dissibility, (5) finite differences, and (6) prime numbers (MP)



2709 ED 173 133

Anderon, R. D. 4nd Others

Mathematics for Junior High School, Commentary for Teachers, Volume II (Part 2).

Stanford Univ. Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 60 Note 145p, For related documents, see SE 027 963-967 and ED 130 877, Contains occasional

963.96° and ED 130.87°. Contains occas onal light and broken type. Pub Type. Guides > Classroom - Teacher (052). EDRS Price - MF01. PC06. Plus. Postage. Descriptors. Curriculum. "Curriculum. Guides. "Cicometry. "Instruction, Junior High Schools, Mathematics Education, Measurement. "Number Concepts." Probability. Secondary. Education, "Secondary School Mathematics. Study Group. Thus part they of a transparent monthly and the part than a secondary.

This is part two of a two-part manual for teachers using SMSG junior high school text materials. A chapter-by-chapter commentary on the text is given as well as answers to all the exercises, a few chapters contain sample text questions. Chapter topics include (1) real numbers, (2) similar triangles, (3) variation; (4) non-metric polyhedrons; (5) volumes and surface areas, (b) relative error; (7) perinutations and combinations, and (8) probability (MP)

ED 173 132

Anderson, R. D. Ar Others

Mathematics for Ju. 10r High School, Commentary for Teachers, Volume II (Part 2).

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date: 59

Note 79p. For related documents, see SE 027 963-967 and ED 130 876. Contains occasional light and Broken type Pub Type- Guides - Classroom - Teacher (052)

EDRS Price - MF01 PC04 Plus Postage.

Descriptors \*Algebra, Congruence, Curriculum, \*Curriculum Guides, \*Instruction, Junior High Schools, Mathematical Applications, Mathematics Education, \*Number Concepts, \*Percentage, Secondary Education, \*Secondary School Mathematies

Identifiers \*School Mathematics Study Group This is part one of a two-part manual for teachers using SMSG junior high school text materials. A chapter-by-chapter commentary on the text is given as well as answers to all the exercises. Chapter topies include (1) number line and coordinates; (2) equations, (3) scientific notation, (4) applications of percent, and (5) congruence and the Pythagorean

Property (MP)

ED 173 131

Anderson, R. D., And Others

Mathematics for Junior High School, Commentary for Teachers. Volume 1 (Part 2).

Stamord Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 59

Note 189p, For related documents, see SE 027 963-967 and ED 130 873, Contains occasional light and broken type

Pub Type Guides - Classroom - Teacher (052) EDRS Price - MF01 PC08 Plus Postage.

Descriptors Curriculum, \*Curriculum Guides, \*Geometry, Graphs, \*Instruction, Junior High Schools, Mathematical Applications, Mathematics Education, \*Number Concepts, Secondary Education, \*Secondary School Mathematics, \*Statistics Identifiers \*School Mathematics Study Group

This is part two of a two-part manual for teachers using SMSG junior high school text materials. For each chapter, a brief overview is given and sample test questions are listed, each section contains a discussion of the topic at hand and answers to all the exercises. Chapter topics include: (1) the rational number system, (2) parallels, (3) triangles; (4) paralle'ograms, (5) right prisms, (6) circles, (7) statistics and graphs, (8) mathematical systems, and (9) matics at work in science (MP)

Anderson R. D. And Others

Mathematics for Junior High School, Commentary for Teachers, Volume I (Part 1).

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 59

Note 284p. For related documents, see SE 027 964-967 and TD 130 872. Contains occasional

light and broken type
Pub Type Guides - Classroom - Teacher (052)
EDRS Price - MF01 PC12 Plus Postage.

Descriptors Curriculum, \*Curriculum Guides, Fractions, \*Geometry, \*Instruction, Junior High Schools, Mathematics Education, Measurement, Number Concepts, Prime Numbers, Secondary Education, \*Secondary School Mathematics Identifiers - \*School Mathematics Study Group

This is part one of a two-part manual for teachers using SMSG junior high school text materials. For each chapter, a brief overview is given and sample test questions are listed. Each section contains a discussion of the topic at hand and answers to all the exercises. Chapter topics include, (1) what is mathematics; (2) numeration; (3) whole numbers, (4) non-metric geometry, (5) factoring and primes; (6) the rational number system; and (7) measurement (MP)

2713

Huag, V. H. And Others

Introduction to Secondary School Mathematics. Volume I (Part 3). Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group,

Spons Agency National Science Foundation, Washington, D C

Pub Date - 60 Note - 267p, For related documents, see SE 027 917-918; Contains occasional light and broken type

Pub Type Guides - Classroom - Learner (051) EDRS Price - MF01 PC11 Plus Postage.

Descriptors—Curriculum, \*Geometry, Grade 7, Graphs, \*Instruction, Mathematics Education, \*Measurement, Secondary Education, \*Secondary School Mathematics, Statistics, \*Textbooks Identifiers Area. \*School Mathematics Study

This is part three of a three-part SMSG mathematics text for seventh-grade students. The text was written for those students whose mathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include. (1) measurement; (2) area and volume; (3) parallels; (4) polygons and prisms; (5) circles; and (6) statistics and graphs, (MP)

2714

ED 173 111

ED 173 112

Haag, V. H. And Others

Introduction to Secondary School Mathematics, Volume I (Part 2). Preliminary Edition.

Stanford Univ., Calif. School Mathematics Study Group.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date -- 60

Note 219p. For related documents, see SE 027 917-919 and ED 159 077; Contains occasional

light and broken type.

Pub Type - Guides - Classroom - Learner (051)

EDRS Price - MF01/PC09 Plus Postage.

Descriptors Curriculum, Decimal Fractions, \*Fractions, \*Geometry, Grade 7, \*Instruction, Mathematics Education, Percentage, Ratios (Mathematics), Secondary Education, \*Secondary School Mathematics, \*Textbooks

Identifiers - \*School Mathematics Study Group This is part two of a three-part SMSG mathematics text for seventh-grade students. The text was written for those students whos, inathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include: (1) rational numbers and fractions, (2) non-metric geometry; (3) rational numbers and the number line; (4) decimals; and (5) ratio and percent (MP)

ED 173 130

ED 173 116

haug, V. H. And Others

Introduction to Secondar, School Mathematics, Volume I (Part 1). Preliminary Edition.

Stanford Univ., Calif. School, Mathematics, Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 60 Note 1849; For related documents, see SE 027 918-919 and FD 159 076; Contains occasional

light and broken type
Pub Type Guides ? Classroom - Learner (051)
EDRS Price - MF01 PC08 Plus Postage.
Descriptors Curriculum, \*Geometry, Grade ?,
\*Instruction, Mathematics Education, \*Number Concepts, Prime Numbers, Secondary Education, Secondary School Mathematics, \*Textbooks, \*Whole Numbers Identifiers \*School Mathematics Study Group

This is part one of a three-part SMSG mathematies text for seventh-grade students. The text was written for those students whose mathematical talent is underdeveloped and is essentially the same subject matter presented in the SMSG text. Chapter topics include: (1) what is mathematics; (2) number symbols, (3) whole numbers; (4) non-metric geometry; (5) factoring; and (6) primes (MP)

2716 ED 171 558 ISS-Based Mathematics Program. Teacher Manual. Level 08. Curriculum. 1978 Edition. Teachers

Community School District 18, Brooklyn, N.Y. Spons Agency New York State Education Dept., Albany; Office of Education (DHEW), Washington, D C New York State Education Dept.,

ton, D.C.
Pub Date 78
Note 177p., For related document, see SE 027
741; Contains occasional light and broken type.
Pub Type. Guides - Classroom - Teacher (052)
EDRS Price - MF01 PC08 Plus Postage.
Descriptors - \*Course Descriptions. Curriculum
Daudspapert Curriculum Enrichment. \*Cur-

Development, Curriculum Enrichment, \*Curriculum Guides, Grade 8, Guides, \*Instructional Materials, \*Mathematics Curriculum, Mathemat ics Education, \*Objectives, Secondary Education, \*Secondary School Mathematics, Teaching Guides

Identifiers- \*Instructional Support System

This publication is the teachers' manual, level 8, of the Instructional Support Systems (ISS) Program. which was de sloped by the Community School District 18 of New York. It presents seven topics (1) fractions; (2) decimals; (3) integers; (4) geometry; (5) measurement; (6) algebraic concepts, and (7) graphs, probability, and statistics. Each topic consists of several modules. Two types of modules (standard and advanced) and a suggested module sequence are presented to better meet the needs of all the students. The standard modules contain instructional objectives which introduce and develop new concepts and skills related to algebra and geometry. The advanced modules contain instructional objectives which offer mathematical enrich-ment. Activities are listed in the order of objectives to which they relate. Activities generally consist of examples and problems which lead to mastery of the specific objectives. Suggested durations for level eight modules one also included. (HM)

2717

ED 159 081

Haag, V. H. And Others

Introduction to Secondary School Mathematics. Volume 2, Teacher's Commentary, Unit 42. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 62

Note 309 957-961 309p., For related documents, see SE 024

937-961
Pub Type Guides General (050)
EDRS Price MF01 PC13 Plus Postage.
Descriptors Algebra, Curriculum, Geometric Concepts, \*Grade 8, \*Instruction, Jun. or High Schools, Mathematics Education, Measurement, Number Concepts, Secondary Education, \*Secondary Set Mathematics, Statistics, \*Teaching

Identifiers \*School Mathematics Study Group

This is volume two of a two-volume manual for teachers using SMSG text materials for students in grades 7 and 8 whose mathematical talents are underdeveloped. The overall purpose for each of the chapters is described and the mathematical develop-

in cost detailed. Background information for key concopts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics to all linear measurement area and volume, ans us viid portalely polygons and prisms, circles, statistics and graphs ogatise rational numbers, equations and moduli ares, coordinates in the plane. real nameers, and  $x_{\rm c}$  ontific notation, decimals, and the metric system ((MN))

2718

ED 159 080

House & H And Others

Introduction to Secondary School Mathematics, Volume 2, Student's Text, Part II, Unit 41. Revised Edition.

Stanford Univ. Caul. School Mathematics Study

Spens Needley National Science Foundation, Washington D. P. in Date 168.

Nation 1886. For related documents seems (\$55.462) Contains occasional fight and broken 186p. For related documents, see 8F-024.

1000
P. J. Type Busics (11) 1
EDRS Price - MF01 PC08 Plus Postage.
Describers Argebra: Analytic Geometry, Carbest Describers Argebra: Analytic Geometry, Carbest Describers Argebra: Fractions, \*Grade 8, Graphs, \*Instructional Miterials, Junior High Schools, Mathematics Education, Measurement, Metric System Number Colleges, Secondary Education, \*Secondary School Mathematics, Statistics, \*Lexibosics\* \* Lextbooks feuritiers - \*School Mathematics Study Croup

This spart two of a wo-part SMSG text for grade cleri sti dents whose mathematical falents are un-decidescoped. The reading lever of this text has been adjusted downward, chapters shortened, and elditional concrete examples included. Nevertheess, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include negative rational ompers, equations and inequalities, coordinates in the plane, real numbers, and scientific notation, teermals, and the metric system (MN)

ED 159 079

Haug & H. And Others Introduction to Secondary School Mathematics. Volume 2, Student's Text, Part 1, Unit 40. Revised Edition.

Stanford Univ. Calif. School. Mathematics Study Group

Agency National Science Foundation,

Sports Agency National Science roundation, Washington, D.C. Pub Date: 65
Note: 251p. For related documents, see SF 024-957-962. Contains occasional light type.

P.b Type Books (010) EDRS Price - MF01 PC11 Plus Postage.

Descriptors Curriculum, Geometric Concepts, "Grade 8, Instructional Materials, Junior High Schools Mathematics Education, Measurement, Number Concepts, Secondary Education "Se-culary School Mathematics, Statistics, "Text-South

Figure 1. School Mathematics Study viroup. This is part one of a two-part SMSG text for grade eight students whose mathematical talents are on fordeveloped. The reading level of this text has neeti adjusted downward, chapters shortened, and idditional concrete examples included. Neverthe-icss, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include linear measure-ment, area and volume, angles and parallels, polygots and prisms, circles, and statistics and graphs MN

2720

ED 159 078

Haug & H. And Others

Introduction to Secondary School Mathematics, Volume 1, Teacher's Commentary, Unit 39, Revised Edition.

Stanto d. I. fa., Calif. School, Mathematics, Study Great

Spink Agency & Washington, D.C. P.S. Date n2 National Science Foundation,

Note 288p For relation v87/962 Pub I spe Guides (General (080)) 288p. For related documents, see SE 024

EDRS Price - MF01 PC12 Plus Postage.

Descriptors Carriculum, Geometric Concepts, \*Orade : Instruction, Junior High Schools, Mathematics Education, Sumber Concepts, Secondary Education, "Secondary School Mathematics, "Year ning Guides

Identifiers \*School Mathematics Study Group

This is volume one of a two-volume manual for teachers using SMSG text materials for students in grades 7 and 8 whose mathematical talents are inderdeveloped. The overall purpose for each of the chapters is described and the mathematical development detailed. Background information for kell concepts, answers for all exercises in each chapter, and suggested test items are provided. Chapter topics include number symbols, whole numbers, non-metric geometry, factoring and primes, rational numbers and tractions, rational numbers and the number line, decimals, and ratio and percent (MN)

2721

ED 159 07

Haug, V. H. And Others Introduction to Secondary School Mathematics, Volume I, Student's Text, Part 11, Unit 38. Revised Editi n.

Stanford Univ., Calif. School. Mathematics Studie Ciroup

Sports Agency National Sci. ice Foundation Washington, D.C.
 Pub Date 168
 Note 122p For related documents, sec 8F 024

Note 222p For related documency, see 1. 957-962. Contains occasional light and broken

Books (010)

EDRS Price - MF01 PC09 Plus Postage.

Descriptors Curriculum, Geometric Concepts,

\*Grade 7, \*Instructional Materials, Jun of High
Schools, Mathematics Education, Number Concepts, Ratios (Mathematics), Secondary Education, \*Secondary School Mathematics, \*Textbooks Identifiers \*School Mathematics Study Group This is part two of a two-pult SMSG text for grade

seven students whose mathematical talents are un-derdeveloped. The reading level of this text has been adjusted downward, chapters shortened, and additional concrete examples included. Nevertheless, the authors warn that the text may not be appropriate for the very slow non-college-bound student. Chapter topics include rational numbers and fractions, non-metric geometry, rational numbers and the number line, decimals, and ratio and percent (MN)

2722

ED 159 075

Haug, V. H. And Others

Introduction to Secondary School Mathematics. Volume 1. Student's Text, Part I, Unit 37. Revised Edition.

Stanford Univ. Calit. School Mathematics Study Group

Spons Agency Nashington, D.C. Pub Date 62 Agency National Science Foundation,

194p. For related documents, see SE 624 958-962

Pub Type Books (010)

EDRS Price - MF01 PC08 Plus Postage.

EDRS Price • MF01 PC08 Plus Postage.

Descriptors Curniculum, Geometric Concepts,

"Grade 7, "Instructional Materials, Junior High
Schools, Mathematics Education, Number Concepts, Secondary Education, "Secondary School
Mathematics, "Textbooks
Identifiers "School Mathematics Study Group
This is part one of a two-part FMSG text for grade
seven students whose mathematical talents are underdeveloped. The reading level of the text-baderdeveloped.

derdeveloped. The reading level of this text has been adjusted downward, chapte s shortened, and additional concrete examples included. Nevertheless, the authors warn that the cext may not be ap-propriate for the very slow non-college-bound student. Chapter topics include: number symbols, whole numbers, non-metric geometry, and factoring and primes (MN)

2723 ED 155 028 Mathematics for Junior High School, Pilot Edition, Second Course, Chapters 5 & 6.

Boston Uno , Mass

Spons Agencs N Washington, D.C. National Science Foundation, Pub Date

Grant NSF-SED-74-18105 Note 58p. For related documents, see SE 024 Note 58; 279-282

Books (010

Descriptors Activity Units, \*Curriculum, Earth Science, \*Instructional Materials, \*Junior High Schools \*Mathematics Materials, Measurement, p. 21 Problem Sets, \*Secondary School Mathematics, \*Textbooks Identifiers \*Boston Unviersity Mathematics Pro-

feet Functions (Mathematics) Scientific Neta tion, Variables (Mathematics)

This book contains the fifth and sixth chapters of the second course of a pilot mathematics seemet is for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the develop ment of refevant computational skills, mathematical reasoning, and geometric per eption in three dimensions and is to reflect the application of mathematics to the social and man al sciences. The material is divided into five to be of sections to a a, fivities, (2) short reading s = ons (3) a estions (4) sections for the student with a we (5) background, and (8) sections for the strongly motivated student. The material in the 10th and sixth chapters of the second course include measurement, seentific notation, and variables and functions (MN).

ED 155 027 Mathematics for Junior High School, Pilot Edition, Second Course, Chapters 1-4.

Boston Univ., Mass.

Spons Agency N Washington, D.C. Pub Date 76 National Science Foundation

Pub Date 78 Grant NSE 8FD-74-1 (8) Note 11 p. For related documents, sc. 8F-021 794-28

Pob Iype

Pub Type Books (010)
EDRS Price - MF01 PC05 Plus Postage.
Descriptors Activity Units \*Contaminate Geometric Concepts, \*Instructional Materials, \*Lin for High Schools, "Mathematics Materials Number Concepts, Problem Sets, "Secondary School Mathematics, Solid Geometry, "Text-

Identifiers \*Boston University Mathematics Pro-

ject. Exponents, Signed Symbols. This book combins the first four chapters of the econd course of a pilot metalematics sequence for the seventh and eighth graces. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, at d geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections (1) activities, (2) short reading sections, (3) questions, (4) sections for the student with a weaker background, and (5) syctions for the strongly motivated student. The material in the first four chapters of the second course includes the cube, volume, powers of ten, and signed numbers (MN)

2725 ED 155 026 Mathematics for Junior High School, Pilot Edition, Chapter 10.

Boston Univ. Mass Spons Agency N Washington, D.C. National Science Foundation,

Pub Date

Grant NSF-SED-74-18 (nS Note 26p., For related documents, see 81-024 9-283

Pub Type Books (010)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Activity Units, \*Curriculum, Instruc-tional Materials, \*Junior High Schools Math-ematics Education, \*Mathematics Materials, \*Probability, Problem Sets, \*Secondary School Mathematics, \*Textbooks Identifiers \*Boston University Mathematics Pro-

jeet, Estimation (Mathematics)

This book contains the tenth chapter of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a chiefe for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections (1) activities, (2) short reading sections, (3) questions, (4) sections for the student with a weaker background, and (5) sections for the strongly more vated student. The material in chapter ten includes probable and improbable events (MN)

ED 155 025 Mathematics for Junior High School, Pilot Edition, Chapters 8 & 9.

Foston Univ., Mass Spons, Agency, National Science, Foundation, Washington, D.C. hist Pate, 25

Pub Date 75 Grant NSF-SFD-74-18105

Grant NSF-SFD-74-18105 Note 34p. For related documents, sec St. 624



Books (Old)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Activity Units, \*Curneulum, \*Instructional Materials, \*Junior High Schools, \*Mathematics Materials, Percentage, Problem Sets, Sampling, \*Secondary Sc. of Mathematics, \*Textbenks

Identifiers \*Boston University Mathematics Project. Indirect Measurement

This book contains the eighth and ninth chapters of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections (1) activities; (2) short reading sections (3) que aions, (4) seci ons for the student with a weaker background, and (5) sections for the strongly motivated student. The material in chapters eight and nine includes indirect measurements and sampling (MN)

FD 155 024 Mathematics for Junior High School, Pilot Edi-

tion, Chapters 1-7. Boston Univ. Mass

Spons Agency National Science Foundation Washington, D Cub Date 75

Pub Date

Orant NSe/SED-74-18105 Note 212p : For related documents, see SF-024 280-283

Pub Type, Books (010)

EDRS Price - MF01 PC09 Plus Postage.

Descriptor - Activity Units, \*Curriculum, Frie-tions, Geometric Concepts, \*Instructional Materials, \*Junior High Schools, Map Skills, 
\*Mathematics Materials, Measurement, Number Concepts, Problem Sets, Ratios (Mathematics) Secondary School Mathematics, \*Textbooks, Whole Numbers

Identifiers Angles, Area, \*Boston University Mathematics Project

This book contains the first seven chapters of a pilot mathematics sequence for the seventh and eighth grades. The content of the sequence is to serve as a vehicle for the development of relevant computational skills, mathematical reasoning, and geometric perception in three dimensions and is to reflect the application of mathematics to the social and natural sciences. The material is divided into five types of sections. (I) activities by the whole class, small groups, or individuals; (2) short reading sections, (3) questions, (4) sections for the student with a weaker background, and (5) sections for the strongly motivated student. The material in the first seven chapters includes simplified maps, length whole numbers and fractions, angles and their measprement, enlarging and reducing, similar figures, reading maps, quotients and ratios, and area (MN)

2728 ED 143 531

Anderson R. D. And Others

Mathematics for Junior High School, Supplementary Units. Commentary for Teachers. Revised Edition.

Stanford Univ. Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 60 Note 65p. For related document, see SE 023 008.

Contains occasional light and broken type Pub Type Guides - General (050)

EDRS Price - MF01 PC03 Plus Postage. Descriptors Alenbra, "Geometry, Junior High School Students, "Mathematics, Mathematics Education, Number Concepts, Secondary Educa-Non, \*Secondary School Mathematics, \*Teaching

Identifiers \*School Mathematics Study Group

This is the Teacher's Commentary for the Supplementary Units for Junior High School Students. Included in the Commentary are background material for teachers, suggestions for instruction, and answers to student exercises. Also included are comments on how to use the materials with different types of students and time needed for instruction

2729

ED 143 530

Anderson, R. D., And J. hers Mathematics for Junior High School, Supplemen-

tary Units, Revised Edition. Stanford Univ. Calif. School Mathematics Stud-Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 60

122p. For related document, see SF 023 009, Contains occasional light and broken type Pub Type Books (010)

EDRS Price - MF01 PC05 Plus Postage.
Descriptors \*Algebra, \*Geometry, \*Instructional Materials, Junior High School Students, Mathematics, Mathematics Education, Number Con-cepts, Secondary Education, \*Secondary School Mathematics, \*Textbooks Identifiers \*School Mathematics Study Ortoup

This document provides supplementary chapters for junior high school students studying SMSG or SMSG-type mathematics. Chapters include (1) Se's. (2) Special Figures in Project Geometry, (3) Sepenting Decimals and Tests for Divisibility, (4) Symmetry Decimals and Tests for Divisibility, (4) Symmetry Differences, (6) Recent Information on Primes, and (7) Games hash chapter includes background information, discussion of the topic, and exercises (RH)

ED 141 113 Mathematics 7-8 Handbook, 1976 Reprint.

New York State Education Dept. Albany Bureau of General Education Curriculum Development

Pub Date 76 Note 210pg For 1973 Edition, see FD 679 115.

Contains occasional light type Pub Type Guides - General (050)

EDRS Price - MF01 PC09 Plus Postage.

Descriptors Curriculum, \*Curriculum Guides, Grade 7, Grade 8, \*Instruction, \*Learning Activities, Mathematical Enrichment, Mathematics Education, Secondary Education, Secondary School Mathematics, Teaching Girides

This handbook, prepared for teachers of grades 2 and 8, provides suggestions for teaching various aspects of the mathematics courses outlined in the syllabus of the New York State Education Department. The handbook deals with twelve units sets. systems of numeration, natural numbers, whole numbers, positive rationals, integers, the complete set of rationals, reals, ratio and related topics, geometry, statistics, and probability. For each unit there is a review of important concepts, a brief discussion of student needs in the area, suggestions for learning activities, and descriptions of suggested enrichment activities (SD)

2731 ED 130 877

Andersor, R. D. And Others

Mathematics for Junior High School, Volume 2. Teacher's Commentary, Part II. Unit 8. Stanford Univ. Calif. School Mathematics Study

Group Spons Agency N Washington, D.C. National Science Foundation,

Pub Date 61 Note 198p. For related Units 1-7, see SE 021

612-618
Pub Type Guides - General (050)
EDRS Price - MF01 PC08 Plus Postage.
Descriptors \*Curriculum, Elementary Secondary
Education, \*Instruction, \*Junior High Schools,
Mathematics Education, \*Secondary School
Mathematics, \*Teaching Guides
Identifiers - \*School Mathematics Study Group
This eighth unit in the \$MSG junior high mathematics series is the leacher's commentary for Unit

ematics series is the leacher's commentary for Unit 6. A time allotment for each of the chapters in Unit 6 is suggested. Then, for each of the chapters in Unit 6, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are suggested (DT)

2732

ED 130 876

Anderson, R. D. And Others
Mathematics for Junior High School, Volume 2, Teacher's Commentary, Part I. Unit 7, Stanford Univ., Calif. School Mathematics Study

Group Spons Agency

National Science Foundation, Washington, D.C.

Pub Date 61 Note 225p For related Units 1-8, see SE 021 612-619

Pub Type Guides - General (050)

EDRS Price - MF01 PC09 Plus Postage.
Descriptors \*Carri, aliam, Flementary Necondary
Felication, \*Immor High Schools,
Mathematics Education, \*Socondary School
Mathematics, \*Teaching Guides
Identifiers \*School Mathematics brids Group
This extensional in the SMSC tomor high mathematics

This seventh unit in the SMSG numer high mathematics series is the teacher's commentary for Unit 5. A time allotment for each of the chapters in Unit Susuggested Then for each of the chapters in Unit 5, the objectives for that chapter are specified, the mathematics is discussed, some teaching suggestions are provided, the answers to exercises are listed, and sample test questions for that chapter are

27.33 ED 130 875

And from R. D. And Others

suggested (DT)

Mathematics for Junior High School, Volume 2, Student's Text, Part II, Unit 6.

Stanford Univ., Calif. School Mathematics, Study

Spons Agency National Science Foundation, Washington, D.C.

Washington, C. Pub Date: 61
Note: 323p; For related Units: (8) see \$1,021
612-619. Contains occasional light and broken

type ub Type BOOKS (0120)

EDPS Price - NE01 PC13 Plus Postage, Descriptors \*Curriculum, Elementary Secondary Education Cocometric Concepts, Instruction, \*Instructional Materials \*Junior High Schools, Mathematics Education, Probability, \*Secondary School Mathematics, \*Teythooks Identifiers \*School Mathematics Study Group

This sixth unit in the SMSG junior high mathematics series is a student text covering the following topics, permutations and selections, probability, similar triangles and visiation, non-metric geometry, volumes and surface areas, the sphere, and unsolved problems in mathematics (DT)

2734

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 2, Student's Text, Part I. Unit 5

Stanford Univ. Calif. School Mathematics Study Group.

Spons Agency N Washington, D C National Science Foundation,

Pub Date 61 Note 29°p. For related Units 1-8, see SE 021 612-619. Contains occasional light and broken

type Pub Type Books (010)

EDRS Price - MF01 PC12 Plus Postage.

Descriptors Algebra, \*Curriculum, Elementary Schools Algebra. Currentine. Elementary Secondary Education. Geometric Concepts, Instruction, \*Instructional Materials, \*Junior High Schools Mathematics Education, Measurement, Metric System, Number Concepts, Number System, \*Secondary School Mathematics, \*Text-books. books

\*School Mathematics Study Group

This fifth unit in the SMSG junior high mathematics series is a student text covering the following topics rational numbers and coordinates; equations, scientific notation, decimals, and the metric system, constructions, congruent triangles, and the Pythagorean property, relative error, and real numbers (DT)

2735

ED 130 873

ED 130 874

Anderson, R. D. And Others

Mathematics for Junior High School, Volume 1, Teacher's Commentary, Part II, Unit 4, Revised

Stanford Univ. Chilf School Mathematics Study Group. Spons Agency

National Science Foundation, Washington, D.C. Pub Date 65 Note 213p; For related Units 1-8, see Sh 021

612-619; Contains occasional light type Pub Type Guides - General (050)

Pub Type Guides - General (0,00) EDRS Price - MF01 PC09 Plus Postage. Descriptors \*Curriculum, Elementary Secondary Education, \*Instruction, \*Junior High Schools, Mathematics Education, \*Secondary School Education, "Instruction, Junio Figure School Mathematics Education, "Secondary School Mathematics," Teaching Guides Identifiers "School Mathematics Study Group This fourth unit in the SMSG junior high mathematics of the SMSG purior high secondary for the secondary of the SMSG purior high mathematics of the SMSG purio

ematics series is the teacher's commentary for Unit A time allotment for each of the chapters in Unit 2 is suggested. Then, for each of the chapters in Unit 2, the objectives for that chapter are specified, the



a promution is discussed some teaching suggeshas no provided the answers to exercises are sted, and sample test questions on that chapter are suggested aDIV

2736 FD 130 822

this min R. D. And Ohmen

Mathematics for Junior High School, Volume 1. Teacher's Commentary, Part I. Unit 3. Revised Edition

Standor Cleary Court School Mathematics Study Linkson.

Species Agency Satisfial Science Foundation, Wash notice 150

Pub Date on No. Note 25to For vehicle Units 1.8, see SE 021 612 now Contains accessional agriculture broken

P.S. Ispe. Condes. General (080)

### EDRS Price - MF01 PC11 Plus Postage.

PDRS Price - MPUL 18 11 Fins Cosinger,
Description - Curricularin - Leimental A Secondary
Filed on - Testraction - Timor High Schools,
Mathematics - Education - Secondary - School
Michematics - Teaching Grades

rations "School Mathematics Study Group to differs. \*Soft his Maintenance solution and This proof and soft in the SMSG purpose high math monthly for Unit of the series is the feather's commentary for Unit Althorough the cach of the chapters in Unit as second. They for each of the chapters in Unit the objectives for that objects are specified, the michemities is discussed some teaching suggesto its are provided, the hiswers to exercises are sted and sample test questions for that chapter are suggested (Diff)

2737 FD 130 871

Underson R. D. And Others

Mathematics for Junior High School, Volume 1, Student's Text, Part 11, Unit 2,

Stant and Univ., Calif. School, Mathematics, Study Company

is Agency National Science Foundation,  $W_{\rm ISS infiguration}, \, D \, C$ 

1 . Date ht

Note 2017 For related Units 1-8, see SE 021 512 519. Contains occasional light and broken

Par Type Books (010)

# EDRS Price - MF01 PC12 Plus Postage. Descriptors \*\*Curriculum, Flementary Secondary

Education, Geometric Concepts, Instruction, \*Instructional Materials, "Junior High Schools, Mithematical Applications, Mathematics Educa-tion, Ratios (Mathematics), \*Secondary School Mattematics, Statistics, \*Textbooks lienuties Properties (Mathematics), \*School

Mathematics Study Group

the second unit in the SMSG series for juntor might school mathematics is a student text covering the following topics, ratios, percents, and decimals, nuturiels, parallelograms, triangles, and right prisms, ir. los, mathematical systems, statistics and graphs, and mathematics in science (DT)

2738 ED 130 870

Anders n R D And Others

Mathematics for Junior High School, Volume 1, Student's Text, Part I. Unit 1.

Stanford Liniv., Calif. School Mathematics Study

Spons Agency National Science Foundation Washington, D.C.

Pub Date | 61 Note | 36 p. For related Units 2-8, see SE 021 613-619. Contains occasional light and broken type

Publispe Books (010)

### EDRS Price - MF01 PC15 Plus Postage.

Descriptors \*Curriculum, Elementary Secondary Education, Geometric Concepts, Instruction, \*Instructional Materials, "Junior High Schools, Mathematics Education, Measurement, Number Concepts, Number Systems, \*Secondary School Mathematics, \*Textbooks

Lientifiers \*School Muthematics Study Group

This first unit in the SMSG's junior high mathematics series is a student text covering the following topics, what is mathematics", numeration, whole combers, non-metric geometry, factoring and primes, the rational number system, measurement, and area, volume, weight, and time (DT)

2739 ED 111 645

Delignner William S. and Others

Secondary School Mathematics Special Edition, Chapter 17, Solving Equations and Inequalities, Chapter 18. Coordinate Geometry, Student's Text.

Stanford Univ., Calif. School, Mathematics, Study Group

Spons Agence National Science Foundation Washington, D.C.

Pub Date 71

Note: 165p. For the accompanying teacher's commentary, see SF-019-482. Related documents are ED 046 766,769 and 779, and SE 019 487 489 Available from A. C. Vroman, Inc., 2088, East Footbill Blvd., Pasadena, California 91, 692 Pub Type Books (010)

EDRS Price - MF01 PC07 Plus Postage.

Describes Curriculum, \*Geometry, Graphs \*Inc., carries, Instruction, Jamor High Schools, \*Low Achievement, Secondary Education, \*Secondary School Mathematics, "Textbooks

Identifiers \*School Mathematics Study Group

This text is one of the sequence of textbooks beaduced for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the last. This set of volumes differs from the regular editions of SMSG jumor high school texts in that very little reading is required. Concepts and processes are illustrated pictorially, and many exercises are included. This volume continues the study of equations begun in chapter 8, and develops methods for solving linear inequalities and quadratic equations. In the last chapter the slopeintercept form of a linear equation is discussed, and the method of solution of simultaneous linear equations is detailed. Equations of parallel and perpendicular pairs of lines are examined. The concepts of absolute value and distance are introduced, and the method of computing the distance between two points in a plane is described (SD)

2740 ED 111 644 DeVenney, William S. And Others

Secondary School Mathematics Special Edition. Chopter 15. Measurement, Chapter 16. Real Numbers, Student's Text.

Stanford Univ., Calif. School. Mathematics. Study Group

Spons Agency National Science Foundation, Washington, D.C.

Pub Date

Note: 166p., For the accompanying teacher's commentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 487-490 As atlable from A. C. Vroman, Inc., 2085 East Foothill Blvd., Pasadena, California 91109 Pub Type Books (010)

EDRS Price - MF01 PC07 Plus Postage.

Descriptors Curriculum, Geometric Concepts, Instruction, Junior High Schools, \*Low Achievement, "Measurement, Metric System, "Number Systems, Secondary Education, \*Secondary School Mathematics, \*Textbooks

dentifiers "School Mathematics Study Group

This text is one of the sequence of textbooks pro disend for low achievers in the seventh and might, grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, if which this is the seventh. This set of volumes differs from the regular editions of SMSC junior high school texts in that very little reading is required Concepts and processes are illustrated pictorially, and many exercises are included. Chapter 15, the first of two chapters in this volume, concerns measurement. The need for standard units is discussed and, after some work on computation with mixed numbers, both English and metric units are introduced. Measurement of angles using the protractor and computation of area are also discussed. In chapter 16 perfect squares are presented, and the idea of finding the sides of squares with given area is used to motivate an introduction to the real numbers Computations with radicals, the Pythagorean theorem, and circumference and area of circles are also developed (SD)

1D 111 644

Delicanes William S. Ind Ohners

Secondary School Mathematics Special Edition Chapter 12. Similarity, Chapter 13. More About Rational Sumbers, Chapter 14, Perpendiculars, Student's Texa

Stanford Univ., Cost. School Methematics Study Group

Spots Agency Notional Security Foundation Washington Die

I' & Date

Note: 20 sp. For the accompanying teacher scoonmentary, see \$1,019.487. Related documents of ED 046.766.769 and 779 and \$1,039.487.496. Available from A. C. Vroman, Inc., 2088, Last Footbul Blyd., Pasadena, California 9: 509. Published Books offor-

EDRS Price - MF01 PC09 Plus Postage

Descriptors Cathellan \*Connectes, Conseque Commetty, Citable Instruction, La a Theb Schools \*Low V hasement, Naminer Concepts Number Systems, \*Rational Numbers, 8 - out are Education (\*Secondary School Mid conducts • l'extbooks

Identifiers "School Mathematics Study Group This text is one of the sequence of textbooks produced for low ichievers in the seventh and cighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the sixth. This set of volumes differs from the regular editions of SMSG jumor high school texts in that very little reading is required Concepts and processes are illustrated pictorially and many exercises are included. Similarity of triangles is the focus of the first chapter (12) in this volume. The use of ratios and scale factors is introduced, and the computation of percentages by construction of parallel lines on a grid is developed. In chapter 13 the emphasis is on computation with rational numbers in both common fraction and decimal forms. In this context exponents are introduced Chapter 14 deals with motion geometry and perpendiculanty (SD)

ED 111 642

Devenney, William S. And Others

Secondary School Mathematics Special Edition, Chapter 10. Decimals, Chapter 11. Parallelism, Student's Text.

Stanford Univ., Calif. School, Mathematics, Study Group

Spons Agency National Science Franctitoes Washington, D.C.

Pub Date

Note 155p. For the accompanying teacher's conmentary, see SE 019 482. Related documents are ED 046 766-769 and 779, and SE 019 488 490 Available from A. C. Vroman, Inc., 2085 East Foothil, Bivd., Pasadena, California 21109 Pub Type Books (010)

EDRS Price - MF01 PC07 Plus Postage.

Descriptors Curriculum, \*Decimal Fractions, \*Geometric Concepts, Geometry, Instruction, Junior High Schools, "Low Achievement, Number Concepts, Secondary Education, \*Secondary School Mathematics, \*Textbooks Identifiers \*School Mathematics Study Group

This text is one of the sequence of textbooks prodecend for low achievers in the seventh and eighth grades by the School Mathematics Study Group (SMSG). There are eight texts in the sequence, of which this is the fifth. This set of columns differs from the regular editions of SMSG junior high school texts in that very little reading is required Concepts and processes are illustrated pictorially, and many exercises are included. This volume deals with decimals (chapter 10) and parallelism (chapter 11) After a brief review of the fundamental operations on whole numbers, the place value system and use of decimal notation are discussed. The decimal point is introduced in the context of the monetary system, and exercises involving conversion from decimal to common fractions, and conversely, are presented. The chapter on parallelism begins with a review of congruence, and relies on constructions in developing the notions of perpendicularity and purallelism. This volume includes tables for addition and multiplication, and flow charts for operations on rationals to be used by students as needed (SD)



ED 111 641 Defennes, William S., And Otners

Secondary School Mathematics Special Edition, Teacher's Commentary, Chapters 10 18, Stanford Univ., Claid School Mathematics Study

Spons Agency National Science Foundation, Washington, D.C.

Pab Date

Pub Date 1.1.
Note 2489; For the accompanying textbooks, see NF 019-487-490. Related documents are F.D. 046-766-769, and 779.
Available from A. C. Vroman, Inc., 2088. Fast

Foothill Blyd., Pasadena, California 91 109

Pub Type Guides - General (050) EDRS Price - MF01 PC10 Plus Postage.

Descriptors Curriculum, \*Geometric Concepts, Geometry, \*Instruction, Junior High Schools, \*Low Achievement, Measurement, Number Conopts, Number Systems, Secondary Education, \*Secondary School Mathematics \*Teaching Guides, Textbooks Identifiers \*School Mathematics Study Group

This manual was designed for use by teachers using the School Mathematics Study Group's (SMSG) special text series for low achievers in grades and 8, it covers, hapters 10 through 18 of that series The manual begins with introductory material describing characteristics of low-acmieving students and suggested instructional approaches. Testing policies, classroom routine, and necessary materials and supplies are also discussed. For each chapter of the text this volume lists and describes objectives, suggests special approaches where desirable, and provides solutions to all problems posed in the student text (SD)

2744

ED 092 410

Sanden, Manuerite

Mathematics, Grade 8, De Soto Parish Curriculum

DeSoto Parish School Board, Mansfield, La Spons Agency Bureau of Elementary and Second-ary Education (DHFW OE), Washington, D.C. Pub Date Aug 71

Note 214p Pub Type Guides - General (050)

EDRS Price - MF01 PC09 Plus Postage.
Descriptors - \*Algebra, \*Curriculum Guides, Deci-

mai Fractions, Geometric Concepts, \*Orade 8, Instruction, Integers, Measurement, Number Concepts, Prime Numbers, Rational Numbers, Rations (Mathematics), \*Secondary School Mathematics, Teaching Guides, \*Teaching Methods Identifiers Elementary Secondary Education Act Title III, \*Geometric Constructions

This guide is designed to aid the teacher in planninte and teaching an eighth-grade mathematics course which should strengthen the student's under-standing of the basic structure of mathematics through experience with and appreciation of abstract concepts. Thirteen units outlined are entitled. Numeration Systems, Natural Numbers and Zero, Integers Equations, Writing and Solving Equations, Factoring and Prime Numbers, Rational Numbers, Ratio-Proportion-Percent, Points, Lines and Planes, Measurement, Construction, Perimeter-Area-Volume, and Linear Metric Measure Behavioral objectives are listed for each unit. Aims, suggested materials and methods, and teaching techniques are written for each lesson (JP)

2745 ED 084 082 Introduction to Stretching Machines, Mathemat-

ics (Experimental): 5211.08. Dade County Public Schools, Miami, Fla Pub Date 72

Pub Date 72
Note 24p. An Authorized Course of Instruction for the Outmoister Program
EDRS Price - MF01 PC01 Plus Postage.

Descriptors Behavioral Objectives, \*Curriculum, Instruction, Low Achievement, Mathematics Education, "Number Concepts, "Objectives, "Secondary School Mathematics, "Teaching Guides

Identifiers Equations (Mathematics), \*Quinmes ter Program

Performance objectives are stated for this secondary school instructional and concerned with intro-duction to the stretcher and shrinker approach, solution of simple equations, factoring composite numbers into primes, definition of prime numbers, and communication skills with computational con-cepts. The course of study is intended for students having competence in the basic computational skills. with whole numbers. Comments are presented concoming teaching of the course the oided are a time schedule for instruction of stretearing machines an outline of the topics and chectives included in the course content, suggestions for administration of pre- and posttests, and asts of classroom supplies, teaching aids, and state-adopted and other texts for enrichment and practice purposes (CC)

ED 079 130

Pre-Algebra 2, Mathematics (Experimental); 521(-12)

Dade Jounty Pablic Schools, Mianin, Ela-Pub Late

Note 23p. An Authorical Course of Justication for the Quinmester Program EDRS Price - MF01 PC01 Plus Postage.

Descriptors Algebra, Behavioral Objectives, Carreculum. Instruction, Mathematics Education.
\*Number Concepts,
\*Objectives, \*Secondary
School Mathematics, \*Teaching Guides, Tests Identifiers \*Quiomester Program

This is the second of four guidebooks on minimum content designed a strongthen fundamental concepts which are basic preparation for Algebra l. This booklet covers integers, rational and irrational num bers, real number properties and operations, graphing in one dimension, and open sentences. The overall course goals are stated, then, for each topic covered, a list of performance objectives, a course outline references to state-adopted texts, and suggested teaching strategies is provided. Prefest and positiest items, play a list of eight references are included. For the first guidebook in this set, see ED 062 181 (DT)

Mathematics 7-8 Handbook, 1973 Reprint

New York State Education Dept., Albany, Bingan of Secondary Curriculum Development Pub Date 69

209p

Note 209p EDRS Price - MF01 PC09 Plus Postage. Descriptors \*Curriculum, Curriculum, Guides, Grade \*\*, Grade \*\*, \*Instruction, Mathematical Enrichment, Mathematics Education, \*Second-ary School Mathematics, \*Teaching Guides This handbook provides suggestions for teaching

topics in seventh and eighth grade mathematics and was intended to be used as a supplement to the seventh and eighth sinde syllabus (see SE 016.446). Optimal materials, activities, and approaches are suggested for the following topics sets, numeration systems, natural numbers, whole numbers, rational numbers, integers, and real numbers, ratio, proportion, percent, and variation, geometry, statistics, and probability (DT)

2748 ED 079 114

Mathematics Courses for the Seventh Year and Eighth Year, 1973 Reprint.

New York State Education Dept., Albany Bureau of Secondary Carriculant Development Pub Date

Note Sep EDRS Price - MF01 PC02 Plus Postage. Descriptors \*Curriculum. \*Curriculum Guides, Grade 7, Grade 8, Instruction, Mathematics Edu-cation, \*Secondary School Mathematics, \*Teaching Guides

Scope and content charts specifying units, topics, and time allotment are provided for grades 7 and 8 Sets, numeration systems, whole numbers and positive rational numbers, ratio-proportion and percent, and geometry are the units covered in seventh grade. In eighth grade, the units include sets, real numbers, ratio-proportion-and-percent, geometry coordinate geometry, and statistics. The remainder of the guide briefly explains mathematical content and suggests teaching methods. See SE 016, 447 for the bandbook which supplements this syilabus OTI

Note 140

ED 067 293

Gordon, Mariorie S.

Math Structures 2, Mathematics: 5211.22. Dade County Public Schools, Miami, Fla Pub Date 11

Date County runne schools, Filming 19
Pub Date 71
Note 25p: An Airhorized Course of Instruction for the Quinmester Program
EDRS Price - MF01 PC01 Plus Postage.
Descriptors Behavioral Objectives, \*Curriculum, \*Grade 7, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Timbing Guides, Toxis. \*Teaching Guides, Tests Identifiers \*Quinmester Program

This is one of two guidebooks designed for the

highly motivated student in grade seven. Decimals tatio and proportion, and percent are covered. Over tall god's for the longer are specified, then perform ance objectives a unit outline, references, and teaching suggestions are given for each unit. A sample position and a list of references are included

2750 ED 062 181

Slantord, Doro K. Thornton James F. Jr. Authorized Course of Instruction for the Quinmes-

ter Program Mathematics: Pre-Algebra 1, Dade County Public Schools Mann, Fla Pub Date [7]

FDRS Price - MF01 PC01 Phs Postage.

Descriptors \*Vectors Carriculum Instruction,
Instructional Materials, Mathematics Education. \*Objectives, \*Secondary School Mathematics,

\*Teaching Guides Units of Study Monthlers \*Quarmester Program The first of four "quins" designed to strengthen undamental concepts and skills, this course covers properties of real numbers, simple open sentences, ictorization of natural numbers, and problem solving. After a list of overall goals, the guide gives performance objectives, course outline, references to state-adopted textbooks, and suggested strategies for four units. Also included is a sample prefest, sample positiest, and a student hibliography (MM)

ED 031 410 Mathematics 8th Year, Part 2, Curriculum Bulle-tin, 1967-68 Series, No. 18b. New York City Board of Education, Brooklyn, N.Y.

Bureau of Curriculum Development

Pub Date 69 Note 177p

Available from New York City Board of Education, Publications Sales Office, 110 Licingston Street, Brooklyn, New York 11201 (\$3.00)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.
Descriptors \*Anthmetic, \*Carriculum Develop-

ment, Discovery Processes, Grade 8, \*Instruc-tional Materials, Mathematical Concepts, Mathematics, Number Concepts, Problem Solsing, \*Secondary School Mathematics, \*Teaching Guides

Identifiers New York, New York (New York) The contemporary mathematics program set forth

this publication developed as a result of experimentation and evaluation in classroom situa-tions. This is Part 2 of "Mathematics 8th Year" Part 3, a separate bulletia, was published during the school year 1967-68. The materials in this bulletin are intended to serve as guidelines for teachers in helping students to discover and understand properties of rational numbers, equations and inequalities, arrational numbers, graphs, surface area and volume, and statistics and probability (RP)

ED 025 422 Mathematics 7th Year, Part 1.

New York City Board of F. Lation, Brooklyn, N.Y. Bureau of Curriculum Ecvelopment

Pub Date 66 Note 123p Available from New York City Board of Education, Publications Sales Office, 110 Livingston Street Brooklyn, New York 11201 (\$2.50).

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS. Descriptors \*Arithmetic, Course Content, \*Cur-

Josephors - Arithmett, Course Content, \*Curriculum, Curriculum Development, Geometry Grade 7, \*Mathematics, Number Concepts, \*Secondary School Mathematics, \*Teaching Guides Identifiers New York, New York (New York) This curriculum bulletin is one of a plant ed series a Schlatter, Identifiers and School Content of the School Cont

of bulletins designed to meet the needs of leachers and supervisors. The materials in this building onsist of a series of daily lesson plans for use by teachers is presenting a modern program of seventh year mai matics. In these lesson plans are developed the concepts, skills, and applications of "Mathematics Seventh Year." The insterial in this bulletin emphasize: (1) an understanding of mathematical structure. (2) growth of a number system, (3) relations and operations of a number system. tions and operations in a number system, (4) a development of mathematical skills based on an understanding of mathematical principles, and (5) concept of set in number and in geometry. The bulletin is organized into five chapters. Numbers and Numerais, Operations and Properties of Whole Numbers, Non-Metric Geon etry, Factoring, and Rational Numbers (Multiplication and Division)



2753 FD 023 601

Mathematics, 7th year, Part 2.

New York City Board of Education, Brooking NY Pub Date 67

Note: 201p.

Venezible from New York City Board of Education. Publications Sales Office, 110 Lisingston Street, Brooklyn, New York 11201 (\$3.00)

EDRS Price - MF01 Plus Postage, PC Not Availsble from EDRS.

Descriptors Algebra, \*Arithmetic, Course Content \*Curricinum Geometry, Grade 7, Instruc Vetivities, Mathematical Learning Concepts, \*Mathematics, Number Concepts, \*Sesoliday School Mathematics, \*Teaching Guides Etentitiers New York, New York (New York)

the materials in this bulletin consist of a series of the second plans for use by teachers in presenting a modern program of seventh year mathematics. In these assent plans are developed concepts, skills ; and applications. There is an emphasis on (1) an indepstanding of mathematical structure, (2) an earth of a number system, (3) relations and opentions in a number system, (4) a desclopment of atheniatical skills based on an understanding of athematical principles, and (8) concept of set in either and in geometry. This guide contains chap ters on fational numbers (addition and subtraction). non sentences decimals measurement, per cent, graphs in I the set of integers (RP)

ED 023 509

Mathematics, 8th year, Part I.

New York City Board of Education, Brooklyn, N.Y. Bi read of Carriculum Development

Pub Date Jan 68 Note 1895

Variable from New York City Board of Education Publications Sales Office, 110 Livingston Street Brooklyn, New York 11201 (\$3.00)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors - Algebra, \*Arithmetic, Boards of Edulation, Course Content, Curriculum, Geometry, Grade 8, \*Instruction, Mathematical Concepts, \*Mathematics, Number Concepts, \*Second-ry School Mathematics, \*Teaching Guides

Identifiers New York, New York (New York) The materials in this bulletin consist of a series of daily lesson plans for use by teachers it presenting a modern program of eighth year mathematics Uncre is an emphasis on (1) an understanding of nathematical structure, (2) growth of a number systerm (3) relations and operations in a number sysfem. (4) a development of marhematical skills based an understanding of mathematical principles, end (S) concept of set in number and in geometry Cossionin materials are developed on such matha natical concepts as measurement, triangles and quadrilaterals, square and cubic measure, systems of numeration, and the set of integers (RP)

ED 021 728

From Back L

Squares, Square Roots, Right Triangles.

Pib Date Aug 67

Note 30p

EDRS Price - MF01 PC02 Plus Postage.

Descriptors \*Arithmetic. \*Elementary School Mathematics, Geometry, \*Instructional Materiils, Low Ability Students, "Mathematics Henrifers Elementary and Secondary Education

Act Tele III

This beaklet, one of a series, has been developed for the project, A Program for Mathematically Unferdeveloped Papils. A project team, including inservice teachers, is being used to write and develop the materials for this program. The materials developed in this booklet include (1) elementary properties of the exponent, (2) properties of the right triangle (3) squares and square roots, (4) the Pythagorean Theorem, (5) the acute and the obtuse triangle, (6) length of a diagonal of a rectangular solution of 3 activities involving the determination of areas to rifed by the squares of sides of triangles Accompanying these booklets will be a "Teaching Strategy Binaklet" which will include a description of teacher techniques, methods, suggested sesources scadenic games, and suggested visual moterals (RP)

2756 FD 020-892 FOLEY JACK I METRIC GEOMETRY, CONCEPTS OF AREA MEASURE.

Pub Date Al Go? Note SP

EDRS Price - ME01 PC02 Plus Postage.
Descriptors \*Arithmens. \*I lementary School. Mathematics, Extracurricular Activities, Ocon-\*Instructional Materials Low Ability via\*Mathematics Measurement, dents Disconomics of

Identifiers - Flementary Secondary Education A t Litle III

1978 BOOKLET ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY INDERDEVELOPED PUPILS A PROJECT FEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS. THE MATERIALS FOR THIS PROGRAM THE MATERIALS DEVELOPED IN THIS BOOK. LEFT INCIL DE SUCH CONCEPTS AS (1) VASIO(NELSOE MEASURE, CONFIDENCE AREAS OF ELEMENTARY CONFIGURATIONS PARALLELOGRAMS, TRIANGLES AND TRAPPZOIDS BY DECOMPOSITION (5) AREA FORMULAS, AND (4) APPLICATIONS OF THE APPROPRIATE AREA FORMULA TO CIRCLES ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY BOOKLET" WHICH WILL INCILLDE A DESCRIPTION OF LEACHER TECHNIQLES, METHODS, SUGGESTED SE CLUDE A DESCRIPTION OF TEACHER TECHNIQUES, METHODS, SUGGESTED SE-OUENCES, ACADEMIC GAMES, AND SUG-GESTED VISUAL MATERIALS (RP)

ED 010 886 FOLEY, JACK L PER CENT FRACTIONS.

Pub Date NOV6

EDRS Price - MF01 PC02 Plus Postage.

Descriptors \*Anthmetic, \*Elementary School Mathematics, Extracutricular Activities, Fractions, \*Instructional Materials, Low Ability Students, \*Mathematics

Identifiers Elementary Secondary Education Act

Title III

THIS BOOKLET, ONE OF A SERIES, HAS BEEN DEVELOPED FOR THE PROJECT, A PROGRAM FOR MATHEMATICALLY UNDERDEVELOPED PUPILS A PROJECT DERDEVELOPED PUPILS A PROJECT TEAM, INCLUDING INSERVICE TEACHERS, IS BEING USED TO WRITE AND DEVELOP THE MATERIALS FOR THIS PROGRAM THE MATERIALS DEVELOPED IN THE SECOND MATERIALS DEVELOPED IN THIS BOOK-MATERIALS DEVELOPED IN THIS BOOK-LET INCLUDE (1) BASIC IDEAS ABOUT THE VALUE OF MONEY, (2) REVIEW OF FRAC-TIONS, (3) BUDGETS, (4) EQUIVALENT FRACTIONS WITH DENOMINATORS OF 100, AND (5) BED (FINE) FRACTIONS WITH DENOMINATORS OF 100, AND (5) PER CENT. ACCOMPANYING THESE BOOKLETS WILL BE A "TEACHING STRATEGY EOOKLET" WHICH WILL INCLUDE A DESCRIPTION OF TEACHER JECHNIQUES, METHODS, SUGGESTED SEQUENCES, ACADEMIC GAMES, AND SUGGESTED USE ALL MATERIALS (DD). GESTED VISUAL MATERIALS (RP)

2758 ED 016 612 BENNEIT, LURA

TRANSITIONAL CURRICULUM GUIDE FOR MATHEMATICS IN GRADES 7 AND 8. Mexico State Dept of Education, Santa Fe-Put Date 66 Note 135P

EDR3 Price - MF01 PC06 Plus Postage.

EDRS Price - MF01 PC06 Plus Postage.

Descriptors - Arithmetic Curroculum, "Curroculum Gnides, "Geometry, Grade 7, Grade 8, "Mathematics, Measurement, "Secondary School Mathematics, Statistics, "Teaching Guides Identifiers NEW MENICO THIS TRANSITIONAL CURRICULUM GLIDE WAS DESIGNED TO SERVE THE FOLLOWING PURPONES (1) TO POINT OUT THE VARIOUS CONCEPTS, DEFINITIONS, MEANINGS. AND APPLICATIONS THE VARIOUS CONCEPTS, DEFINITIONS, MEANINGS, AND APPLICATIONS REI A/ED TO CERTAIN AREAS OF MATHEWALICS WHICH SHOULD BE THE CONTENT OF MATHEMATICS IN GRADES SEVEN AND EIGHT, (2) TO BRIDGE THE GAP BETWEEN TRANSITIONAL PROGRAMS AND MORE MODERNIZED COURSES, TO INCORPORATE MODERN DERMINOLOGY WITH THE TRADITIONAL LOPICS, AND TO INTRODUCE NEW CONTENTS.

CEPTS AS APPROPRIATE, AND (5 TO HELD CEPTS AS APPROPRIATE, AND CO TO HELD TEACHERS BUILD AN ARITHMETIC BACK DROLEND OF THEIR STUDENTS BY PRESIDENT OF THE STUDENTS BY MAY ACCIPIABLE TO ALL STUDENTS BY MAINTAINING AND POLISHING COMPUTATIONAL SKILLS BY INTRODUCING AND SERVE AND OFFICE AND AND ACCIPIANT OF THE STATE AND OFFICE AND AND ACCIPIANT OF THE STATE AND OFFICE AND ADDRESS TERMINOLOGY. USING MODERN TERMINOLOGY AND BY DEVELOPING PAIL
TERNS OF TPOLIGHT NECESSARY TO A VIER WORK IN MATHEMATICS SAMPLE INSTRUCTIONAL UNITS ON A STAMBLE OF TOPICS HAVE BLEN INCLUDED. THESE UNITS ARE STRUCTURED TO SHOW HOW THE MATERIAL CAN BE ORGANIZED FOR EFFICIENT TEACHING AND TO PROVIDE SOME HELPELT IDEAS ABOUT HOW TO SOME HELPEL LIDEAS ABOUT HOW TO PRESENT CERTAIN LOPICS LOPICS PRESENTED IN THE GUIDE INCLUDE ALM BERS AND OPERATIONS, GEOMETRY MEASUREMENT, BUNNESS ARTHMETIC RALIOS, GRAPHS, SETS MATHEMATICAL ST. LENCES, AND STATISTICS (RP)

1-D 169 5016

Frans. Diane

Learning Activity Package, Pre-Algebra.

Ninety Nix High School, S. C. Pub Date 72

Note 1340

Note 134p EDRS Price - MF01 PC06 Plus Postage. Descriptors Algebra, "Curriculum, "Indissidual field Instruction, "Instructional Materials, Mathematics Education, "Number Concepts, Number Systems, Objectives, "Secondary School Mathematics, Set Theory, Teacher Descioped Materials, Teaching Guides, Units of Study A set of ten feacher-prepared Learning Activity

A set of ten teacher-prepared Learning Activity Packages (LAPs) for individualized instruction in topics in pre-algebra, the units cover the decimal numeration system, number theory, fractions and decimals, ratio, proportion, and percent, sets, properties of operations, rational numbers, real numbers, open expressions, and open rational expressions Each unit contains a rationale for the material, a list of behavioral objectives for the unit, a list of resources including texts (specifying reading assignments and problem sets), tape recordings and immercial games to be used, a problem set for student self-evaluation, suggestions for advanced study, and references. For other documents in this series, see SE 015 193, SE 015 195, SE 015 196, and SE 015 197. (DT)



### VARIED TOPICS: K-8

ED 180 763

vas Maureen Hetteman, Ea-... b matics Comprehensive Program Guide: K-8 Mgcbra I.

Valley Regional High School District, Pub Date

Note 39p. Not available in paper on due to marginal legibility of original documes

Pub Type Guides - Classroom - Teacher - S21 Guides - Non Classroom (255)

### EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Academic Achievement, Algebra, \*Curriculum Guides, \*Educational Objectives, Elementary Secondary Education, Geometry Graphs, \*Mathematics Curriculum. \*Mathematics ics Education, Measurement, Number Concepts, Program Guides, Set Theory

This mathematics curriculum guide was deve-loped in response to the need for an updated regional mathematics guide identifying commo-student performance expectations of the profes commission sional staff. The expectations, stated as instructional objectives, have been organized into two major components (1) an overall "Mathematics Compre-hensive Program Guide K-8 and Aigebra L" and (2) a separate "Mathematics Grade Level Guide" destened for each grade level K-8. Each of these two imponents organizes the objectives into six categories numeration and numbers, operations, sets and set notation, geometry, measurement, and graphs. For each grade level, the two guide componer andicate whether the objective is to be introduced, reinforced, mastered, or continued. Certain objectives are designated as optional (Author, MK)

ED 176 945 West Bloomfield School District Mathematics Curriculum Guide, K-12,

West Bloomfield Schools, Mich Pun Date [79] Note [55p], Contains occasional light and broken

type
Pub Type Guides - Classroom - Teacher (052)
Guides - Non-Classroom (055)
EDRS Price - MF01 PC07 Plus Postage.
Descriptors Algebra, Calculus, "Course Descriptions, "Curriculum, "Curriculum Guides, Elementary Secondary Education, Geometry, "Instruction, Mathematical Applications, "Mathematics Education, Measurement, Number Concepts, "Objectives, Problem Solving, Statistics, Trigonometry

Frigonometry

This curriculum guide outlines the mathematics objectives of each of the grades K-8 under the headings of operations, sentences and problem solving, numbers and numeration, measurement, geometry, statistics, and applications. Examples of each of the objectives are given. High school minimal skills are listed. The sequence of mathematics courses for grades (12 is listed, along with a detailed description of each course. This description includes recommended prerequisites, usual grade level, rationale, description of students for which the course is planned, course evaluation, objectives, and topical outline (MP)

2802 ED 171 545

Briggs, John W

Idaho Curriculum Guide in Mathematics: Grades K-8. Revised Edition. Idaho State Dept. of Education, Boise Bureau of

Educational Services in Date 79

Pub Date Note 646p, not related document, see ED 071 878, Not wailable in hard copy due to marginal legibility of original document.

Pub Type - Guides - Classroom - Teacher (052) EDRS Price - MF03 Plus Postage, PC Not Available from EDRS.

\*\*Descriptors \*\*Behavioral Objectives, Curriculum, \*\*Curriculum Guides, Flementary Secondary Education, \*Instruction, \*\*Learning Activities, \*\*Mathematics Education, \*Teaching Methods Hentifiers \*Idaho

The contents of this guide have been organized under five major topics. (1) number and operations, (2) sets, functions, relations, systems, and logic, geometry, (4) measurement and estimation, and (5) selected topics. A scope-and-requence chart is given for each of the topics for grades K-8. Behavioral chiectives, teaching aids, and suggestions are listed for each of the topics at every grade level from K-8. A list of 33 references on problem solving is inJuited (MP)

2803 110 164 306 Bearing Leaves And Others

Mathematics for the Elementary School, Book 3, Teacher's Commentary, Part II, Unit No. 59. Revised Edition.

Stanford Univ., Calif. School, Mathematics Study Group

Spons Agency Nation is Science Foundation. Wishington D.C. Pub Date 65

Note 352p. 10 chated document, see SE 028 460

Pub Type Books (010)

EDRS Price - MF01 PC15 Plus Postage

Descriptors Curriculum, Econoritary Education, \*Flementary School Mathematics, \*Geometry \*Instructional Materials, Mathematics Education, \*Number Concepts, \*Textbooks Identifiers \*School Mathematics Study Group

This is part two of a two-part SMSG mathematics text for e-ementar a hoof students. One of the goals of the text is the development of mathematical deas via appropriate experiences with things from the physical world and the immediate environment The text materials provide an introduction to the study of mathematics in which growth is from the concrete to the abstract, from the specific to the general. The authors emphasize exploration and progressive refinement of ideas associated with both number and space. Chapter topics include: (1) addition and subtraction - shorter forms of computation, (2) length and area, (3) multiplication, quotients, and division, (4) rational numbers, and (5) division (MP)

2804 ED 164 305

Beatty, Leslie 4nd Others

Mathematics for the Elementary School, Book 3, Teacher's Commentary Part I, Unit No. 58. Revised Edition.

Stanford Univ., Calif. School Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 65 Note 405p., For related document, see SE 025

461. Contains occasional light and blurred print

Pub Type Books (0)(0) EDRS Price - MF01 PC17 Plus Postage.

Descriptors Curriculum, Elementary Education, \*Elementary School Mathematics, \*Geometry, \*Instructional Materials, Mathematics Education, \*Number Concepts, \*Textbooks

Identifie's "School Mathematics Study Group

This is part one of a two part SMSG mathematics text for elementary school students. One of the goals of the text is the development of mathematical idea. via appropriate experiences with things from the physical world and the immediate environment The text materials provide an introduction to the study of mathematics in which growth is from the concrete to the abstract, from the specific to the general. The authors emphasize exploration and progressive refinement of ideas associated with both number and space. Chapter topics include. (1) sets of points, (2) addition and subtraction - review and extension, (3) describing points as numbers, and (4) arrays and multiplication (MP)

2805 ED 161 730 Ideas for Strengthening Mathematics Skills.

New York State Education Dept. Albany Bureau of General Education Curriculum Development. State Univ. of New York, Albany Pub Date [78]

Note 42p Pub Type Books (010)

EDRS Price - MF01 PC02 Plus Postage. Descriptors \*Algorithms, Arithmetic, \*C

•Calculators, \*Computation, Elementary Education, \*Elementary School Mathematics, Instruction, \*Learning Activities, Remedial Mathematics, State Departments of Education, \*Teaching Methods

An overview of some specific approaches which are valuable in strengthening mathematics skills is given. Chapter topics include remediation, subtraction, money games, a visual sequence for teaching fractions, addition, multiplication, grid paper computation, mathematical reading skills, and the calculator in remedial mathematics (MP)

2806 FD 159 05

District 14" Metric Education Program: Curriculum Behavioral Objectives, Scope and Sequence, K-8.

Harvey School District 14% III

Spons Agency Office of Education (DHEW) Washington D.C.

Pub Date Mai 78 Note 12p., Not available in hard copy due to mar

ginal legibility of o gn. d document Pub Type Courdes - General (95)h

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Behavioral Objectives, Curriculum Development, \*Curriculum Guides, \*Flementars School Mathematics, Elementary Secondary Education, "Measurement, Measurement Objectives, \*Metric System, Objectives, Secondary School Mathematics

Curriculum behavioral objecto is for metric programs in grades K-8 are listed in this document. The opiectives are organized according to topic and coded for grade level. The topics covered are a language development, (2) comparison and order ing, (4) measurement length, (4) measurement-(5) measurement man, measurement temperature, (\*\*estimates, (8) calculations, and (9) general information (MP)

2807 ED 159 032

Blau, Sharon And Others Metrics Made Easy: A Classroom Guide - 1978. Fordham Unix, New York, N.Y. Pub Date: 78

Pub Date Note T3p.

Available from Ellaine J. Schwartz, Fordham University at Unicoln Center, 113 West 60th Street, New York, New York 10023 (\$2.00)

Pub Type Guides - General (050)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Activity Units, Educational Gones, Elementary Education, \*Elementary assistanteematics, \*Instructional Materials, Mathematics, Materials, \*Measurement, \*Metric Systems (Control of the Control of the Contr tem, \*Resource Materials, Resource Units

This classroom guide for metric education included a brief rationale and history of metrics, a preliminary metric quiz, a symbol summary, and a list of recommended instructional materials. The guide is comprised primarily of four sections covering the topics of weight, length, volume, and temperature. Each of these sections contains goals and activities for early childhood and for upper grade students as well as activity worksheets. A section describing metric games for reinforcing symbols is also included. (MN)

ED 143 550

Bell, Max S And Others Studies in Mathematics, Volume IX. A Brief Course in Mathematics for Elementary School Teachers, Revised Edition.

Stanford Univ., Calif. School, Mathematics Study Group

Spons Agency National Science Foundation, Washington, D.C. Pub Date 63

Note: 465p; For related documents, see SF 023 928-041-Contains occasional light type Pub Type — Books (010)

Published Books (III) PC19 Plus Postage.

Descriptors \*Arithmetic, \*Curriculium Gaides,
Elementary Education, \*Elementary School
Mathematics, Geometry, Mathematical Applications, Measurement, \*Number Concepts, \*Teach-

ing Guides Identifiers \*School Mathematics Study Group

The purpose of this terms to help elementary school teachers achieve hounce in the teaching of mathematics. Children in ist acquire (1) computational skills. (2) conceptual ideas, and (3) knowledge of applications of mathematics. The text provides rending materials for the teacher as well as problems and exercises to help fix the ideas in mind Problems in each chapter should be worked as they occur in the chapter. Exercises at the end of the chapters are designed to review and clinch ideas Answers are found at the end of the book. A glossary of terms is provided for easy reference. Thirty shapters are included that consider various aspects of mathematics related to the K-6 curriculum, himshasized are four strands (1) Number Systems, (2) Geometry, (3) Measurement, and (4) Applications and Models (RH)



2809

F15 141 157

Rigiry Surge

Laboratory Mathematics Booklet 1 - Leacher's Management Guide

At terson County School District 2 Homea Path,

Species New Co. Bureau of Lement invarid Second my I Control (DHEW OF) Washington, D C

Note: 585 to related documents, see SF 072 59 (699 Not available to band copy due to man gittis legitifity of ofigmal document. P h Type Grades General 1980)

FDRS Price - MF01 Plus Postage, PC Not Availa-

hle from EDRS.

eser prois: \*Carnedlars: Educationally, Disador strated "Lomentary School Mathematics, He-morals Secondary Education, Experiential Foundary Education, Experiential Foundary Education, Experiential of It struction. Institution Laborators, Pen-legal Now. As becomen: Mathematics at on. Iran bing Couldes.

The arism Thealthing voluces are their facilities of Act from the facilities of Act from the facilities are a supported to the companies at

1% siteactions immungement guide accompanies a served rate booklets which comprise the basic a ambie. Mathematics Laboratories for Disad it face f St. dents. A nationally validated Tille [1] ESE Viproport. The project was planned for students and the follow their expected achievement level in rancountes included in the management guide no the to lowing sections (1) The Math Laborators Notherly (2) Organization of the Lab (3) Supervision sort of the Lab (4) Curriculum Booklet Process, (5) Compatible Materials, (6) Planning Activities for the Lab (2) Suggested Grading Methods for the Lab (8) Materials Lists, and (9) Positiesis for Curon on Booklets (RH).

ED 137 103

Schwin, Hamila L. Individualized Mathematics Instruction: How Effective Has It Been in the Elementary School?

Pio Date [76] Note [77]. For related documents, see SE 022 sis Sis 7. Not available in hard copy due to mar-

cone legibility of original document 5-5 Type Reference Materials - Bibliographies

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Curriculum, Elementary Education, \*Elementary School Mathematics, \*Individualared Instruction, Instruction, Mathematics Edu-lation, \*Research Reviews (Publications)

Risearch studies which compare individualized a ementary school mathematics instruction to other is structional approaches are summittied in this paast, brief descriptions are given of individua Prescribed Instruction, Program for Learning in Needs and other self-paced upprovides. Next, a general overview of the research studies is presented, covering research design, length of time of the studies, characteristics of the partic pating stauents, and criterion measures used I make, the results of the studies are reported for a merication to fourth grade, fifth to eighth grade, and educable mentally retarded students. (DT)

ED 123 090

A Specification of Steps to be Followed in the Design of Primary Grade Mathematics Lessons or Use in Individualized Instruction.

Date: Apr 76
 Date: Apr 76
 Section 220 Paper presented at the annual meeting of the American Educational Research Association (Section 2018)
 Francisco, California, April 19927.

Published Parotts - Research (143)

EDRS Price - MF01 PC01 Plus Postage.
Describers - \*Curnicilium Desclopment, hiemenstary Education, \*Elementary School Mathematical Price P ics "Individuatived Instruction, Instruction, Instructional Design, "Instructional Materials, Lesson Plans, "Printary Education, Research, Lass Aprilasis

After reviewing the basic principles of instrucin a lesign, the author outline a seventeen-step for sedure for the election ment of mathematics lessignal inprimary students. The procedure consists of Tisk stoponents. The first is concerned with a notice of the unit, and steps in it concern the stating of the times and analysis of tasks. The seof the impension is solved specifying the necessary stops in a lesson. Stops in this process begin with

sterigram granterion, domestor the terminal objective and working backwards, repeating this process to processiste skills until the skills defined should have been learned in a previous lesson. The third imponent provides for the sequential development of lesson exercises. The procedure has been used to advantage in the devel, ornent of mathematics lessons for kindergotten and first grade pupils of an individuated mathematics program (SD)

FD (19.98) A Teacher's Noteflook Mathematics, K-9, National Association of Independent Schools Box

ton, Mass

Pub Date Sep 78

Note:

Available from National Association of Independent Schools, 4 Tiberty Science, Hoston, Massa Chisetts (22109) (\$300)

Type Coudes General (1950)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Carriculain, Lementary School Mathematics Floringitary Secondary Education instruction \*Instructional Materials, Junior High Schools, \*Mathematics Education, Mathematics Materials \*Resource Materials, Secondar, School, Mathematics, \*Leaching Guides, \*Workschools.

This guide is divided into seven sections according to specific topics rather than by grade levels and or grade level expectations. The topics encompass 1 K-9 program in functude numeration, measurement, operations and computational skills, algebra, informal geometry, sets, logic, and proof, and mathematical patterns. Each section lists concepts and objectives, references to resources, and materials used. In most sections detailed examples and comments on concepts to be developed are given. The guide contains an annotated bibliog aphy of books for teachers and or children (JBW)

ED 113 191 Suggestions for Teaching Mathematics Using Laboratory Approaches Grades 1-6, 2, Operations. Experimental Edition.

New York State Education Dept., Albany, Bureau

of Elementary Curriculum Development Spons Agency Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C.

Div. of Compensatory Education Pub Date [74] Note 32p; Related documents are SE 0]9 740-743.

Pub Type Guides - General (050) EDRS Price - MF01 PC02 Plus Postage. Descriptors Elementary Education, \*Elementary

School Mathematics, Fractions, Guides, Instruc formal ... Materials, Laboratory \*Manipulative Materials, Mathematics Materials, \*Number Concepts, Teacher Developed Materials, \*Teaching Guides, \*Whole Numbers

Identifiers Elementary Secondary Education Act Title 1

This guide describes activities and materials which can be used in a mathematics laboratory approach for a basic mathematics program for grades I-n. Twenty-line activities relate to operations with whose numbers and twenty-five activities pertain to operations with fractions. These activities are described in terms of purpose, suggested grade levels, materials needed, and procedures. Some specific concepts presented are place value, order of operations, equalities and inequalities, whole number operations, patierns, time measure, number facts, number sentences, ratio, applications, fractional parts and operations, geometric shapes, area, dis-sion problem solving, weighing, scale, linear measure, and equivalent fractions. The guide contains a categorical listing of materials such as improvised materials and games, commercial materials and games, general supplies, and other manipulative materials (JBW)

ED 104 720

Higgins, Jon L. Suchs, Larry 4 Mathematics Laboratories: 150 Activities and Games for Elementary Schools,

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio-

Spons Agency National Inst. of Education (DHEW), Washington, D.C. Pub Date. Dec. 14. Note. 2019.

Available from Ohio State University Center for Science and Mathematics Education, 244 Arps Harrison Collaboration of the Collaboration of the

P.S. Lope | Gentles | General 1080 1 DRS Price - MF01 PC09 Plus Postage

Descriptors Hes Skills Lementary Libertonics \*Bementary School Mathematics \*Typerconics Learning Cames Geometrics on spix \*Justication | Listing tional Maderials, \*Laboratories \*Mampulative Materials Meisorement, Number

This column presents a collection of activities just garties for assemi elementary school mathematics laboratories. Use activities and games mended were submitted by classroom teachers and were selected for their use of mampalative materials or their relance on student interactions. Several of the activities included have been described in The Authoritis Teacher, but many are first published it this somme. Activities described are in eight subrect matter categories (1) monber concepts consuldition and subtraction, (3) multiplication and division (4) number skills review, (5) measurement (b) tractions, (7) graphs and tunctions, and (8) germetric concepts. The goals of activities rar go from increasing speed and power in computatio, al situations to a neept learning, development at so stegies and discover. Fach activity description is in our here form and it cludes statements of goals and putposes materials needed, procedures involved, and activity source. Many descriptions include diagrams and instructions for making any necessary materiis isDr

ED 091 221 Mathematics Scope and Sequence, Grades 1-4.

Spons Agency Bureau of Flementary and Seconds ary Estucation (DHEW OF), Washington, D ( Louisiana State Dept. of Education, Biton Rouge

Pub Date [74] Note 107p Pub Type Gu Guides - General (050)

Descriptors Curriculum, \*Curriculum Guides, \*Elementary School Mathematical Concepts, Measurement, \*Number Concepts, \*Objectives, Problem School Scriptors Concepts, \*Objectives, Problem School Scriptors Concepts, \*Objectives, Problem School Scriptors

Solving, Set The, 19 identifiers: Elementary Secondary Education Act Title III, Number Operations

This guide for a mathematics carriculum for grades 1-4 presents topics in sequential order for the entire four-year program. Grade level was not used for separating units, instead, an integrated sequence ing of concepts was used in pieparing this guide. The relationship between units is specified for the teacher as an explicit mapping of how a particular concept is developed throughout the program Number concepts, numeration, geometrical concepts, measurement concepts, and operations with whole numbers and tractions are presented in 43 units. Each unit contains a description of the concepts and mathematical activities with which the students are to be presented Specific performance objectives are also listed +1P4

2817 FD 187.633

Gottman, Erving

Gender Advertisements.

Harper and Row, Publishers, Inc., New York, N.Y. Pub Date 179 Pub Date

Note 845

Available from Harper & Row Publishers, Inc., 10 East 53rd Street, New York, NY 10022 (\$4.95) Pub Type Books (010) Non-Print Media (100)

Document Not Available from EDRS.

Descriptors \*Advertising, \*Females, \*Males, \*Sex Role, \*Sex Stereotypes, \*Social Attitudes.

Social Behavior, Social Structure, Social Values A heavily illustrated discussion of the ways in

which men and women are portrayed in advertisements is presented. The three essays which precede the 56 pages of illustrations discuss gender expresstons, characteristics of public and private pictures. and gender commercials. The author notes that advertisements do not depict how men and women actually behave, rather, they serve the social pur-pose of convincing as that this is how women and men are, want to be, or should be. Such an orientation accomplishes the task a society bas of maintaining order. The accompanying pictures illustrate that (1) a woman is faller than a man only when the man is her social inferior, (2) a woman's hands are seen just harely touching or caressing never grasping or manipulating, (3) when a photograp trates instruction, the man is always instructing the woman, (4) when an advertisement requires some-



other basis or commanded, the per colors allowed asways is man or thid, and (8) women are repeatedly shown moutally drifting from the scene while in is other a tooch with a man. Asso the author tiskes a connection between the image of women and the behavior of children Women are offer rosed acting and socking like children Finally, the a other points out that whatever a main is wearing in an advertisement, he wears semiusly, whereas y sateser woman is wearing appears as a costaine. When we see a woman wearing formal or informal business or sports clothes, we feel that we are war, hing a model play-alting (Author KC).

ED 087 632 Mathematics Curriculum Guide, Grades Ko.

Los Admis Public Schools N. Mes. Pub Date: [74] Note: 302p: Dischwament contacts Discerves. Note: \$02p. This also amend contains 15, eaves, one of which are all inches wide by \$1.2 mehes and require two metodiche from \$EDRS Price: MF01 PC13 Plus Pustage.

Descriptors Addition, \*Behavioral Objectives Curriculum \*Curricultin timdes, Division \*ble mentars ochool Mainematics, Expenserial Learning Games Instruction, "Instructional Mainerials Maineplication, "Number Concepts, Number Systems, Subtraction

I his curriculum gui le for grades Kob is the first of time of a two-pair series. It is meant to provide idered sequence of mathematical concepts from which teachers may organize an ainfimetic program allowing for individual student progress with the situatest amount of individual a tention. Each topic som anged into levels based on the topic's content if it if necessarily by grade leve. Each level of tan the following general categories Concepts. Behavioral Oriectives, References and Resoluces The mostives are marched with textbooks reference thy pages and with specific resource materials To be used in the instruction. A list of activities that outs be used for instruction is also provided at the and of each lever. Tops a covered include numeration, place value, addition, subtraction, multiplica-tion, decision and inequatities. Also provided is a list of \$4 classfoom games that are directly related to the topics included in this guide. For Volume II, see SE 917-305 (JP)

ED 077 77 Staff Utilization for Continuous Progress Education, Math. Pretexts and Posttests for Third and Fourth Grades.

Scottsdale Party, Scottsky Phoepir, Arry Scotts Agency - Burgar of Elementary and Second-ary Education (DHEW, OE), Washington, D.C. Pub Date 4445

Note 444p

EDRS Price - MF01 PC18 Plus Postage.

Descriptors Curriculum, \*Elementary School

Mathematics, \*Evaluation, Grade 3, Grade 4,

\*Instructional Materials, Mathematics Education, Number Concepts, \*Tests

Identifiers Elementary Secondary Education Act

Total 111 \*Number Conceptions.

Identifiers Elementary Seconda Title III \*Number Operations

This document is a collection of mathematics protosts and positiests for grades 3 and 4 on the topics. Sisses, place while, addition-subtraction, multip scation, division, multiplication-division, and fractions. Two forms for each test are provided plus swor kess. Phis work was prepared under an ESEA Title III contract (DT)

ED 077 769 2820 Staff Utilization for Continuous Progress Educa-

tion, Math. A K-8 Scope and Sequence.
Scottsdale PaSic Schools Proents, Azir
Sprins Agency Bata to all Elementary and Secondary Endia thom (DHEW OF) Washington, D.C.
Pasi Date. 73 P.5 Date

EDRS Price - MF01 PC0" Plus Postage.

Descriptors \*Curriculum, Curriculum Development, \*Currical am Guides, Flementary School Mathematics, Geometric Concepts, \*Instruction, Instructional Materials, Mathematics Inducation, Measifement, Number Concepts, Units of Study Hentifiers Flementary Secondary Education Ac e III

but me is presented for the scope and lesof the tellowing topics to be longred in artites Kiss sets, operations, number the ray meastrement geometry and number sentences. Details of a coding scheme for markematics units, exemplate this back less and a description of the proseguints osed to correlate science and mathematiis comises a constitled fitting the control of swing was propored or for an  $\{1,8,4,5,1,7,1,11\}$  , where  $\epsilon$ 

2821 ED 078 234 Elementary Mathematics, A Handbook for Teach-

Maska State Dept. of Education Juneau. Office of Public Information and Publicanions. Pub Date Aug 11

Note - Up -

FDRS Price - MF01 PC02 Plus Postage.

Descriptors \*Curry dant, \*Curry dam Goodes, \*Elementary School Mathematics \*In livid rate ized Instruction, "Instruction, Instructional Materials, Laboratory Procedures, Mathematics Figure of them.

The aim of this guide is to aid elementary teachers in individualizing instruction, hight general above. tives of teaching mathematics are usted. If topics are identified as heing the scope of elementary mathematics of a page mathematics curriculum flow that for grades K his provided, student and teacher needs and examation are discussed in general terms, and three examples of individualized in struction are given. A section on mathematics laboratories includes directions for four activities along with a short list of math lab materials and books. A hibliography of 12 references on mathchain's education is given (D1)

ED 067 257 Improving Reading-Study Skills in Mathematics

New York State Education Dept., Albany, Bureau of Flementary Carriculum Development Pab Date 72

Note: 325

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Concept Formation, \*Flementar, School Mathematics, \*Independent Study, \*Instruction, Instructional Materials, Mathematical Vocabulary, Mathematics, \*Reading \*Study Habits, Symbols (Mathematics)

Presented is the basis for an integrated approach to teaching reading skills and mathematics concepts at the elementary school level. A general explanation of concept formation, of oral and written language, and of mathematics symbols, with specific suggestions as to their application in mathematics, is included in the first section of the paniphlet. The second section deals with the specialized skills needed for reading and thinking in mathematics These skills include decoding word, and math symhols, understanding the processes of mathematics, and applying the decoding and comprehension skills to problem solving. A list of eight suggestions and two references are given to help the teacher and students in developing their mathematics vocabulary. Reading comprehension skills are detailed. with activities specified for helping students with story problems, graphs, and charts. The final section deals with the role of the teacher as one of management and includes a discussion of objectives, evaluation, diagnosis, and organ ration of materials and experiences (DT)

2823 ED 067 238 Mathematics K-6: A Recommended Program.

New York State Education Dept., Albany Bureau of Elementary Curriculum Development Pub Date May 72

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Anthmetic, \*Corriculum, riculum Guides. \*Flementary School Marhemat-Creometry, Instructional Materials, \*Object sex

Identifiers New York

Proposed curriculum topics for elementary school mathematics have been arranged in topic form Six areas are covered numbers and numeration, sets, whole numbers, fractions, problem solving, and geometry and measurement. The first section brief's explains the six areas and a so includes a short discussion of teaching strategies, mumber sentences, problem solving, and developmental algorisms. The second section presents details of a corriculam for each of the six areas in kindergarier through grade

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Mathematics Corriculum Guide, K-6 Clark County School District List Angel School Hob Day 167

Limb

PDRS Price: ME01 PC06 Plus Postage
Descriptors: \*Curriculum Condex: \*Leonordars
School Curriculum \*Figure of the School Mathematics; \*Coconets: Folder: Citate J. Condex Grade 4. Grade S. Grade 6. Kinoergarren, \* Math entatics Carrisphyre

emands Carlemand GKADES OR AGES KASSEBIECT MAT FR. Mathematics ORGANIZATION AND PHYSICAL APPLARANCE The introductory naterial describes the phi oxophy behind the golders purpose, and the way it should be used, and also es utams a sec of an ions which provide a quick overview of the scope and sequence. The main hody of the curde is arranged by grante level in tise color-coded sections. On ember 20 numeration, 31 opera-tions, 41 geometry, and 50 measurement. Each page is arranged in three columns content, behavioral objectives, and textbook page coding. The gaide is labographed and spring bound with a soft cover-OBJECTIVES AND ACTIVITIES. Both are detaled in the behisional objectives column of the golde INSTRUCTIONAL MATERIALS. No in Strict and materials other than the textbooks are listed. STUDENT, ASSESSMENT, No. Specific provisions are made for evaluation. (MBM)

ED 05, 057

Flant, Delivers

Supplement to District Math Ginde 1970-71. Foundam Valley School District Calif. Report No. Curr Bull Mathel. Pub Date 71 Note 52p

PEDRS Price - MF01 PC03 Plus Postage.
Descriptors - Audiovissal Arts, Catalogs Educational Media - Elementary School Mathematics, Instructional Materials, "Manipulative Muccials, Mathematics Education, "Teaching Gindes

This teachers' guide lists manipulative aids, audiovis all materials, and demonstration materials for ise in the elementary school mathematics classcoom Organization of the guide follows that of the California Strands Report (1967-68), as represented by these nine strands of mathematical content numbers and numerals, resometry, measurements, applications, statistics and probability sets, functions and graphs, logic, and problem solving. Cata-log numbers and addresses of suppliers for a equipment are included. (RS)

Elementary Mathematics Guide, K-7. Virginia State Dept. of Education, Richmond

Pub Date 68

EDRS Price - MF01 PC08 Plus Postage.

Descriptors \*Curriculum Guides, \*Elementary School Curriculum, \*Flomentary School Math blementary emitics, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 7, Kindergarten, \*Mathematics GRADES 4

of S. Gradev K-7. St. BJECT MAITER VI. mattes ORGANIZATION AND PHYSICAL APPEAR ANCE The main secfrom of the guide critical. Mathematical Strands with Teaching Suggestions: has the following subsections: 1) sets and numbers, 2) numeration, 3) operations on whole numbers, 4) rational numbers, 5) geometry, and 6) measurement. Other charters deal with problem solving that program objectives. The goods is printed and edition bound with a solving OBJECTIVES AND ACTIVITIES Objections. tises are listed for each grade under the six subsectises are listed for each grade under the six subsection headings. Activities are described in detail in the main section of the grade. INSTRUCTIONAL MATERIAIS. Notice are used. STEDENT ASSESMENT, No special provision is made for evaluation. (MBM)

ED 050 070 Wyoming Mathematics Curriculum Guide, Grades K-6.

Wroming State Dept. of Breating Chevening Pub Date 69 Note: Mich

EDRS Price - MF01 PC04 Plus Postage.
Descriptors - Behasional Objectives, \*Configuration Condes. \*Elementary School Mainematics, Orade 1. Grade 2. Grade 5, strade 4, Grade 5, Grade 6, kindergarten, \*Mathematica: Concepts, \*Mathematics Carriedom, \*Mathematics Materials



ORADIN OR NORS KY NESOFOL MAY TERM MORE THAN ORGANIZATION. AND OTHER ALL APPEARANCE There are the solution of the solution. scope and secondarie charts and grossary for teach and scope a secondaries in Mathematics metals on a deciis to elementary marboniance in tevaliantem or of concertaing mathematics. So Resources for Teach as a Pre-Scope and sequence charts are singular totals. The Kilde is printed and spirit bound with a sortine. OBJECTIVES AND ACQUITES. This sortine is observed by sample tion is arranged out to exist or each grade. The scope and skient valatarts suggest actival es for oach grade out to not after print provide a detailed reside plan.

NSTRI CHONAL MATERIALS Chapter (1) in the extensive of terminal in a manufacture condition that the first contact of instances the like with the design the KSTs internals on letter the east of internal turk The first transfer of Common the second relationship to the second second

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Mathematics in the Elementary School Crity Cas Part School System Ind.

FDRS Price - MF01 PC07 Plus Postage.

Discrete si \*Chiric alam Coades \*Thementary School Cortic alam \*Thementary School Many analos, Coade 1, Coade 2, Grade 3 Grade 4 to ale 5 Grade 6 \*Markements \*Mathematics

ORANIES OF AGEN GODES DO SUBJECT MANTER Managements ORGANIZATION AND PHYSICAL APPEARANCE Theoritists of material includes in confunction of the new supposed to the nine much and diarmostic tests in athematics of the main body and audit deals with the concepts I guide deals with the concepts and contents of the program under the following collings, numbers and numerals, sets and sentcrives, whose mambers, rational numbers, measurement and money geometry, other systems and mases, and money in solving hash topic is subdivided his grade leve. A final section deals with precision the use of the mathematics vocabulary. The guide ... "degraphed and spiral bound with a soft caver OBJECTIVES AND ACTIVITIES. The overall obelives are interior the beginning of the section, in consisted content, with more detailed objectives The standard of cach topic Nample activities the reservoir all topics for each grade INSTRECT FON AL MATERIAL'S Hibliographies for their and reasons are provided STLD tren and teachers are provided STUDENT ASSESSMENT The mathematics essentials invenfor excise intended to be used as diagnostic and the chattive instruments (FMBM).

2829 ED 048 144 The Brevard County Mathematics Continuum. Broward County Board of Public Instruction, Litus-

Pin Date (% Jun 70

h-15

Personal Price - MF07 PC25 Plus Postage.
Descriptors \*Currequam Gordes \*Friementary School Curregulam \*Kin fergaries \*Mathemati-

GRADEN OR AGES ASSISTED MAT TER Mythematics ORGANIZATION AND PHYSICAL APPEARANCE Although the contes tis finder a to seven skill levels, surrations may he hade in their use and two topics inay be taught s m of angoins's. Each level is organized in two parts, the first having columns showing activities with exonles feet all resources, and related resources, the on the ming tests and answer keys. The guide optioned and spiral-bound with a plastic binde objectives AND ACTIVITIES. No specific ob-Comes are given for each level ANSTRUCTION N. MATERIALS References are provided THOUSE MATERIALS. References are provided in scaling the kinds to relevant Houghton Miffling in elections. Afther a common for the teacher to note softer southly assume that material. STEDENT ASSESSIMENT TESTS are provided for each level to measure the masters of single skills or a number of a feet social the teachers. mistrategy manual at the heginning at the group.

1 15 0115 448 The Teaching of Modern Mathematics, Kon J. Instructional Model, Carriculum Guide, Scope

and Sequence Guide and Teacher's Manual) Calmennia, Arma S. Sono, Physica Par

Species Agency - Bareau of Elementary and School of the Education (DBHW-011) Wishington (DC Pub Dire in

EDRS Price - ME01 Plus Postage, PC Not Available from FERS

The state of the state of Description Com. Ladam Crastes \*1 Terment of School Markey as historia bor "Historia horra" Materials Mosteri Mathematics Identifiers of the Networking Edition (A)

distributed in this sensition decreases a description are rest in normal medications, arms agains a responsibility and changes a control on 20 to developed by the ele-ther tare school reachers of the Cautomia Area School District scope and sequence guides and a to a bety manage. The instructional mode, includes the sent poisses postests prorequisites in the his orsus tree relaters the ideas of Festive group. ne in use notified subsequentity in the relies services marcial contains, natgrains for each content item feseched to the conficulting golde as well is lessen plans, worksheers, prerequisites and content schavoth pupil response sheets enrichment in iterials at individual record sheets. This work was premised under an ESEA life III outract. Not as of able to hardcopy due to marginal legisitive of orrenal document [1415]

ED 026 269 (in Saum, Bernard B., 4nd Others

(Orange County Science Education Improvement Project Syllabuses, K-6.]

Orange County Dept of Education Senta And Car

Spons Agency National Science Four darson, Washington D.C. P.S. Date No. Note 819p

EDRS Price - MFII PC33 Plus Postage.

Descriptors \*Archimetic, \*Curriculum, \*Flomentury School Mathematics, Fundamentar Conepts, \*Instructional Materials Mathematics Sumber Concepts, \*Teaching Guides, Teaching Methods

These syllabuses for K-b were written, evaluated, and revised by a team of writers from the Orange Comity Science Education Improvement Project (OCSFIP) OCSFIP is a cooperative enterprise undertaken by the University of California Tryiner. Ca fornia State College at Fullerton, the Orange County Schools Office, and local districts throughour Grange County. These syllabuses were written to help teachers teach the best aspects of recent mathematics programs. Presented are some methouts of approach, intuitive examples, suggestions for additions and deletions, and applications in mothemuties. The mathematical content for these sycobuses the udes inaterials from geometry, sets, numbers and numerations, order and relations, addition and subtraction, problem solving, and measurement (RP)

2832 ED 026 237 Guidelines for Mathematics in the Elementary

South Carolina State Dept. of Education, Columbia Pub Date 64 Note 325

Note Sep EDRS Price - MF01 PC02 Plus Postage. Descriptors Arithmetic. \*Curriculum, \*Curriculum Guides, \*Elementary School Mathematics, Geometry, \*Mathematics, Number Concepts State Departments of Education, \*Textbook Contert. Textbook Evaluation

Identifiers South Carolina

This publication identifies some of the order ying att is relevant to improved mathematics programs the elementary school. This publication does not masoribe a course of study. It does, however, proa desideas to assist school personnel in their analysis of mathematics programs and textbooks. It presents an orderly outline of topics and concepts of the improved mathematics programs of the elementary school included are (1) some of the major mathcircultural content that presently constitutes elementirs, mithematics textbooks, and (2) a seriot contents tione considered in the selection of textbooks of RPs

MATHEMATICS LOR TELEMIENEARY SCHOOL DEACHERS.

National Co., Wishington Dis-Pub Data Into Service of Market and Control

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EDRS Price - ME01 Plus Postage, PC Not. Omlable from EDRS

Descriptions Agriculture Articipus (El Cristons)
School Machinera (S. Machinera et Concepts)
Machinera areas Toschafter (Norther University)
Safetic (S. Ferrito et alices Tradbooks)
PRODICE DAS PART OF A PROJECT FOR THE IMPROVEMENT OF CLASSROOM! DEACHING THE BOOK DISCUSSES THE BASIC CONCEPTS AND OPERATIONS OF SECTION THE WHICH ARE LAST GHT TO ELE MENTARY SCHOOL STUDINGS THE CON-STREOF A SET IN USED THROUGHOLD AS ABASSIORINE NATION AND THE DIS CLOSEN STRESSE WAY BY WHICH SIT DENIS CAN BE BROLGET TO ENDERSTAND THE CONCERN THE FIRST CHAPTER COVERS BEGINNING SUMBER CONCIPINATIA PATENG COUNTING SUCCEEDING CHAPTERS CONER DECIMAL NUMERATION SYSTEM, ADDITION, MULTIPLICATION, SUBTRACTION MASION, ALGORITHMS FOR ARITHMETIC OMPLIATIONS AND THE WHOLE NEM BERNYSIEM THE FINAL SECTIONS OF THE BOOK INCIL DE ANSWERS TO THE EVER CISES GIVEN IN THE CHAPTERS AND DE-SCRIPTIVE DEFINITIONS OF TERMS USED THIS DOCUMENT IS AVAILABLE FROM THE NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS 1201 SIMILENTH

STREET, NA WASHINGTON, D.C. 2003 2834 BD Olb bill

KOCH RICHARD R GUIDELINES FOR MATHEMATICS IN THE ELEMENTARY SCHOOL.

Delaware State Dept. of Public Instruction, Dover Pub Date SEPAN Note Map

Note 2199

EDRS Price - MF01 PC09 Plus Postage.

Descriptors "Arithmetic, "Curriculum, "Curriculum Guides, "Flore neary School Mathematics, "Mathematics, Vicasurement, "Teaching

CORE

Guides Tenching Methods Identities DELAWARE THESE GUIDELINES FOR CLASSROOM TEACHERS OFFER SUGGESTION FOR TEACHING FLEMENTARY SCHOOL MATH EMATICS IN A MANNER TO REFLECT RE-EMATICS IN A MANNER TO REPUTE CREE
CENT CHANGES IN CONTENT
TECHNIQUES, AND APPROACHES TO
TEACHING, MATLEMATICS THE PURPOSES OF THESE GUIDELINES ARE OF TO DETERMINE A DIR.CTION FOR MATH-FMATIC EDUCATION IN THE FLEMEN. TASY SCHOOLS OF DELAWARE (2) TO PROVIDE A COMMON BASIS FOR THE MATHEMATICS CURRICULTM FOR THE CHILDREN, (3) TO PROVIDE A SOURCE OF INFORMATION FOR THE PLANNING OF IN-DIVIDUAL DISTRICT PROGRAMS (4) TO ES-TABLISH CRITERIA FOR A BALANCED CURRICULUM THROUGH WHICH TEACH-FRS MAY EVALUATE THEIR OWN IN-DIVIDUAL PROGRAMS (S) TO DEVELOP A LOGICAL SEQUENTIAL PROGRAM FOR USE IN THE FLEMENTARY GRADES, AND

TO ENCOURAGE USE OF MATHEMATI-LANGUAGE RECOMMENDED APPRO-HES AND METHODS OF PROCEDURE RE EXPECTED TO LEAD TO THE FOLLOW-ING GOALS (1) PROVIDING FOR INDIVIDUAL DIFFERENCES, (2) STRESSING PRINCIPLES RATHER THAN SPECIFICS, (3) BUILDING THE STUDENT'S CONFIDENCE IN HIS OWN DISCOVERY ABILITY AND CREATIVE THINKING. (4) DEVELOPING THE STUDENT'S ABILITY TO ANALYZE VERBAL PROBLEMS AND TO TRANSLATE THESE INTO A FORM WHICH LEADS TO THE STUDENTS AND TO TRANSLATE THESE INTO A FORM WHICH LEADS TO THE STUDENTS AND THE STUDENT THEIR SOLUTION, AND (S) DEVELOPING AN ABILITY ON THE PART OF THE SIL. DENT TO COMMUNICATE HIS UNDER-

STANDING TRPE



## VARIED TOPICS: 7-12

2900 FD 183 430

State Mary Official S.

Mathematics in Baseball, Topical Module for Use in a Mathematics Laboratory Setting Regional Center for Pre Cold Michematics Den-

Spons Agency National Science Foundation,

Washington DC Pub Date

NSE-GW-2720

Note: SSF-GW-7729 Note: 50p. For related flavoments, see SF-030 304-322. Baseball strustics marginally legible,

Pul Tope — Condos (Classroom (Tearner 608))
Condos — Classroom (Teacher 6082)
EDRS Price - MF91 PC02 Plus Postage,
Descriptors — Baseball, Field Tops, \*Learner •Learning Laboratories, \*Mathematical Applications, Mathematics Curriculum, \*Mathematics Instruction, Secondary Education, "Secondary School Mathematics, Worksheets

The objectives of this module include (1) improveoig general ar thinetic skills including whole numbers, tractions, and decimal fractions, (2) learning to compute averages, (3) strengthening knowledge of percent, (4) learning to locate needed information or statistical data (5) reviewing or learning the use or statistical data is previously to reinforcing knowledge for the Extragorean Theorem, (b) reinforcing knowledge of the concepts of area and volume, (7) learns ing to locate points in a coordinate system, and (8) making calculations related to a circle Several strong recommendations concerning the use of this module are given. These are (1) for motivational reasons, it should be used during baseball season, and (2) the innual film on the World Series prodirect by the Cora Cora Company should be shown as an introduction to the module (MK)

2901

ED 183 403

Brotherton Shoria And Others Logic, Geometry Module for Use in a Mathematics

Laboratory Setting, Regional Center for Pre-Cici, Mathematics, Den-

Spons Agency N Washington, D C Pub Date 74 National Science Foundation,

Pub Date 4 Grant NSF/GW-7720 Note 90p For related documents, see SE 030 404-522, Contains occasional light and broken

type
Publispe Grades - Classroom - Learner (08)
Grades Classroom - Teacher (082)
EDRS Price - MF01 PC04 Plus Postage.
Descriptors "Activities, Electric Circuits, Geometry "Learning Laboratories, "Logic, "Mathematical Logic Mathematics Curriculum, cal Logic Mathematics Curriculum, 
\*Mathematics Instruction, Secondary Education, 
\*Secondary School Mathematics, Worksheets

Within this single module there are two appro-Recometry textbooks fail to give an adequate discussion of logic, a "textbook" treatment of the subject has been included. This is finated as explanations interspersed in the exercises and these can be used as a textbook approach. However, also included is in activities approach which appears at the begin-tion of each section (Author MK)

ED 175 940

McNeil Phillip E. Cimp. And Others Intervention Model: Mathematics.

Institute for Services to Education, Inc., Washing-

Institute for Services to Education, Inc., Washington, D.C.
Pub Date 75
Note 2275
Available from In. of de for Services to Education, 2001 S. Screet, S.W., Washington, D.C. 20000 (\$7.95)

Pub Type: Gaides - Classroom - Learner (051) EDRS Price - MF01 PC10 Plus Postage. Descriptors: "Achievement, "Curriculum, "Edicationally Disadvantaged, "Instruction, Secondary Education, "Secondary School Mathematics, Textbeniks

This competency-based model has been deveasped to apgrade the mathematical skills of typical minority students in urban high schools. The central philosophy is that an underprepared student of mathematics can be made computationally literate and mathematically viable in three semesters, whatever the level of preparation. Units covered are At thmetic and Computation, Algebraic Expres-sions Exponents and Radicals, Algebra of Equation Solving, Graphs and Their Interpretation, Geomethy and Measurement Base, Statistics, and Northern cal Ingonoesciry a MPs.

FD 175 706

Studies in Mathematics, Volume I. Some Basic Mathematical Concepts

Standord and Calif School Mathematics Study Group

Spons Agency National Scenic Elegistation, Washington, D.C. Pub Director

Note Inup

Pub Type Charles Classe on Learner casts EDRS Price - MF01 PC07 Pins Postage.

Descriptors Curriculum, \*Games, Independent Study, \*Inservice Education, \*Instruction, Math-ematics, \*Mathematics, Education, Secondary Education, Secondary School Mathematics, \*Set Phene v

Identifiers \*Functions (Mathematics), \*School Mathematics Study Group

This is one in a series of NMSG books on various topics directly reared to high school mathematics courses, designed for the conclusion those mathematics teachers who wish to improve their teaching through independent reading. Particular attention is paid to topics which play an important part in the courses developed by SMSG. Chapter topics include sets, relations, orderings, functions, in a many ration of functions, an mathematical games (MP) and axiomatication

ED 175 703 Study Guides In Mathematics: Algebra, Geometry,

Number Theory, Probability, and Statistics. Stanford Univ. Calif. School Mathematics Study

poins Agency National Science Foundations Washington, D.C. Spons Agency

Pub Date: 62

Pub Date 1/2 Note 1/9p Pub Type Reference Materials (1/9) 84COL PC02 Plus Posts

EDRS Price - MF01 PC02 Plus Postage. Descriptors: Algebra. "Bibliographies. Corriculum, Geometry, Higher Education, "Inversice Education, "Instruction, Mathematics, "Mathematics Education, Probability, Secondary Eduation, Secondary School Mathematics, Statistics, Study Guides

Identifiers "School Mathematics Study Group This SMSG study guide is designed to provide assistance to teachers who wish to improve their professional competence by self-study or by group study. The main purpose of the guide is to list and organize suitable references. Topics covered include (1) algebra, (2) geometry, (3) number theory, (4) probability, and (5) statistics (MP)

ED 173 097 School Mathematics Study Group, Unit Number Fifteen, Chapter 27 - Analyzing Geometric Fig-ures, Chapter 28 - Measurement.

Stanford Univ., Calif. School Mathematics Study Group

Sports Agency Sational Science Foundation, Washington, D.C. Pub Date 68

Note 89p. Not available in hard copy due to small, light and broken type.

Pub Type Guides Classroom - Learner (951).

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors .\*Algebra, \*Analytic Geometry Cur-niculum, \*Instruction, Mathematics Education, "Measurement, Secondary Education, "Necondary School Mathematics," Textbooks Identifiers, "School Mathematics Study Group

This is unit fifteen of a fifteen sunit SMSG second-ary school text for high school students. The text is devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactority in our society. Chanter topics in clude analyzing geometric figures and measurement (MP)

ED 173 096 School Mathematics Study Group, Unit Number Fourteen, Chapter 25 - Statistics, Chapter 26 -Systems of Sentences in Two Variables.

Stanford Using Calif. School Mathematics Study Group

Agency National Science Foundation, Spons Washington, D.C. Pun Dute Ink

Note: 93p. Not available in hard copy ifue to small, light and broken type.

Pob Type Combined Consuming Learning and FDRS Price - ME01 Plus Postage, PC Not Available from 1 DRS

Descriptors "Algebra" Companion. "Compag-Descriptors "Instruction Mathematics Educations Concerns "Instruction "Necondary School Mark Secondary Education "Necondary School Mark Challes, "Natistics "Leabooks Identifiers "Nebool Mathematics Study Group

This is unit tourieer of a fiftien dost SMSG secondary school text for high school students. The text is devoted almost in the site mathematic memory cepts which all citizen should know to order to tunction satisfact into mora society, Chapter tops & include statistics and systems of sontences in two variables (MP)

2907 ED 173 095 School Mathematics Study Group, Unit Number Thirteen, Chapter 22 - Approximations, Chapter 23 - Solution Sets of Mathematical Sentences. Chapter 24 - Quadratic Functions. Stanford Univ. Cult. School Machematics Study

Citizani

Spons Active National Science Enginearion Washington Die

Pub Date | 58 Note | 112p | Not as mable by band copy due to set all, light and broken type

Guides Cossimon Learner (118) i FDRS Price - MF01 Plus Postage PC Not Available from EDRS.

Descriptors \*Vicebra Carriculum, \*Instruction Mathematics Librarion \*Number Concepts, Secondary Education \*Secondary School Math

omatics, \*Textbooks Identifiers \*Estimation (Mathematics), Functions (Mathematics), \*School Mathematics Study

This is unit therteen of a fifteen unit SAISC seandary school text he high school students. The test is devoted almost entire's to mathematical con-opts, which all citizens should know in order to function satisfactorily in our society. Chapter topics include approximations, solution sets of mathematical sentences, and quadratic fun (sons (MP)

2908 ED 173 094 School Mathematics Study Group, Unit Number Twelve, Chapter 19 - Rigid Motions and Coordinates, Chapter 20 - Squares and Rectangle, Chapter 21 - Square Roots and Real Numbers. Stanford Univ. Calif. School Mathematics Stud. Group

Spins A, nes S Washington, D C National Science Loundation,

Pub Date in the Not available in hard copy due to small light and broken type.

Pub Type Guides - Classroom - Learner (05.) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptions: Alicebra, "Analytic Geometry, Car-riculum, "Geometry, "Instruction Mathematics Education, "Number Concepts Necon Lov Indi-cation, "Secondary School Mathematics," To Santia

Identifiers "School Mathematics Study Group This is and twelve of a latter of a 18345 (second-ary school text for high school of 18345 (second-devoted almost entirely to mathematical concepts which all citizens should know in order to function satisfactorily in our society. Chapter topics include rigid motions and coordinates, squares and rectangles, and square roots and real numbers (MP)

School Mathematics Study Group, Unit Number Eleven. Chapter 17 - Coordinate Geometry. Chapter 18 - Problem Analysis,

Stanford of the Calif. School Mathematics Study Group

Sports Agency N Washington, D.C. National Science Foundation

Pub Date: 68 Note: 100p, Not available in hard copy due to

small, light and broken type

Pub Type Guides - Classision - Learner (051) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Algebra, \*Analytic Geometry, Currisulum, \*Instruction, Mathematics Education, \*Projem Solving, Secondary Education, \*New ondary School Mathematics, \*Textbooks Identifiers \*School Mathematics Study Group

This is anni eleven of a fifteen-anni S MSG second-aty school fext for high school students. The text is devoted almost entries to mathematical concepts



A transfer for the contraction of the contraction o satisfies for a composition to hapter topic applicable so beats governed a veliptothers analysis (Att):

ED 173 092 2010 School Mathematics Study Group, Unit Four Chapter " - Equations and Inequalities Chapter 8 Congruence

Standard Univ. Carl School Mathematics South Comment.

Sports Needles National Section Foundation Washington DC

P.J. Date of

Note: 11 sp., Not available of hard loops due to issue to what with and broken upon

" Type Courtes Classification Learner of Sec. EDRS Price - ME01 Plus Postage, PC Not Available from FDRS

Descriptions - A galage Congruence Carriedon the metric bloodens the substice theoretical Mathematics of the door Secondary Education \*Secondary Sebie Mathematics \*Textbooks standards (\*School Marts matics Study Green which should have obtain thee normal SMSE (section). school text for fresh a most students. The profevolute throst entire cate mathematical concept 50. It also follows should know in order to function set of all the view of a society. Chapter topics include the six disnequesties but longraphic (MP)

2911 TO 17 - 1087 tom trans R. Ama Onner

Intermediate Mathematics, Student's Text, Part H. Unit No. 18, Revised Edition.

Start of Love Calif. School Mathematics, Study 

Spenie Agency National Science Foundation, Wishington D.C. P. S. Date 65

Note: 424p., For related document, see FD 021. 496. Contains occasional light type-

Pub Type Guides Classroom - Learner (051) EDRS Price - MF01 PC17 Plus Postage.

Descriptors \*Names, Cutriculum, \*Geometry, Grade 11, \*Instruction, Mathematics Education, Number Systems, Secondary Education, \*Secundary School Mathematics \* Textbooks

identifiers \*Functions (Mathematics), \*School Mathematics Study Group

This is part two of a two-part SMSG interinediate tathematics text for high school students. The time of the text is to focus aftertion or mathematical leas which are appropriate for study by collegeapunie students in the eleventh grade. Chapter topis include number systems, an introduction to sord nate geometry in the plane, the function concot and the linear function, quadratic functions and equations, complex number systems, equations of the first and second degree in two variables, systems of equations in two sariables, and systems of first degree equations in three variables (MP).

2912 ED 17: 575 Sheeling Camile

Annotated Bibliography of Mathematics Curriculum, 1970-1978.

Pun Date Del TK

Note Fin Not established nond copy due to mangram tegishical of original document.

\*\*The Common Commo

Pub Type - Reference Materials - Biblingraphies

EDRS Price - MF01 I lus Postage, PC Not Available from EDRS.

Descriptors \*Annotated Poliographies, \*Corricalism, \*Instruction \*Literature Reviews, \*Mathematics Education, Publications, source Materia's, Secondary Education.

This indictated publicgraphy on mathematics curand are not socioudary schools abstracts references them sources with as journal articles, books, selections from hoose a texchooses, teaching gindes, done ference exports, resource guides, program fescriptions, and correction guides. Topics covered n lade goals of curriculum reforms in curriculum. attent issues in mathematics education casculators in the imputers in the correction, and other current range a MPs

2913 140 150 150 Paris Robert

Making an Impart by Relating of the Content Lields

National Association of School School Progra pa's, Restore Va. Pub Date: May 19 Note: Ap. Cuttis dun Report Vonanc & Non

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Available from National Association of Second in Nobios Protegnals 1904 Association Disc Reston, Vogenia 22091 (stugle copies, \$0 S) each Discounts on quantity orders. Payment ouse in company orders of \$ or no or less).

P. S. Lype Condex Classroom Leacher (1982) Reports Discriptive (141) Collected Works W114 × 101221

EDR's Price - MF01 Plus Postage, PC Not Available from EDRS

Descriptors. Common attornathought Transfers Content Analysis \*Content Area Reading \*Conca Reading Hiementary Secondary Education Program Descriptions \*Keading Comprehension \*Reading Distriction \*Reading Programs Teaching Methods "Textbook Content

Noting that the terms language of mathematics. language of science," and "language of business represent very real language differences which trus ti ite even good to iders, this carriculum report suggests several proceedures teachers might use to assist students in reading in varied consent areas. The projectures include teaching students to recognize how textbook authors shape concepts by the use of sentences, paragraphs, and graphic aids, serving its models for students by adjusting reading rates, by eathing new vocabulary, by identifying how air-bors, shape concepts, and by struggling with probirms, selecting reading materials in content fields on the basis of conceptual as well as rechnical difticulty, and strengthening student responsibilities in reading assignments. Descriptions of several sixcessful programs for content reading instruction are included (DF)

2914 ED 167 382

Buchman Paul Buchman, Aamin Three-Year Sequence for High School Mathematics. Course III.

New York State Education Dept., Albany, Bureau of General Education Curriculum Development. State Lines of New York, Albany Pub Date, Jan 79

Note: 44p. For related document, see ED 134.473 Pub. Type: Guides - Classroom - Teacher (052) EDRS Price - MF01 PC02 Plus Postage.

Descriptors Carriculum, Curriculum Gildes, \*Grade II, \*Instruction Secondary Education, \*Secondary School Mathematics, \*Teaching Guides, \*Units of Study Identifiers \*New York

This curriculum guide covers Course III of a three-year sequence for high school mathematics in New York which was intended to provide an afternative to the regular Regents sequence of minths, tenths, and eleventh-grade mathematics. A listing of scope and content is provided along with suggested time allotments. Topics covered are complex numbers, relations and functions, circular functions, transformation geometry, and probability and statistics. Material in each chapter is discussed and some teaching suggestions are made (MP)

2915 ED 166 026 Mathematics Curriculum Guide, Grades 7-12.

North Carolina State Dept of Public Instruction, Rajeigh Dis of Mathematics

Pub Date

Note 58p Pub Type Gruides - General (050)

EDRS Price - MF01 PC03 Plus Postage.

Descriptors: Course Content: \*Course Descriptions. \*Curriculum, \*Instruction, \*Objectives, Secondary Education, \*Secondary School Mathematics, \*State Curriculum Guides.

The install

The global objectives and content outlines of mathematics courses for grades 7 through 12 are listed and the overall rationale and goal of the courses are discussed. Severa, suggestions are made for changes in the curriculum. The contents include A Curriculum of Choices, Grades 7 and 8, General Muthematics, Introductory Algebra, Algebra I Geometry, Applied Vocational Mathematics, Algebra H. Consumer Mathematics, Advanced Mathematics, Calculus, and Additional Curriculura Considerations (MP)

2916 4-11-556 554

Addition A High interest Workbook in Math.

conation and Language
New Jersey State Dept. (1824), p. 10-11, p. 10-12, p. Report No. 400 S. No. 450 S.

Published From S. Note: Office Annual Section New York Constitution of the Annual Section Constitution New York Constitution of the Annual Section Constitution New York Constitution (New York Constitution New York Const

(\$1.00 play post sector) Branks or con

FDRS Price | MEDI POOL Plus Provingo Description | Activity Entre \* Agencie \* pro-Editionation \* Proving took | Medical Science | Active \* Mathematics | Edition | Medical Science | Medical Sc

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2917 110 41.55

Musticky Evan M. And Otto-

Studies in Mathematics, Volume AII A Brief Course in Mathematics for Junior High School Teachers, Revised Edition

Stanford Univ., Capt. School Mark, Sept. Sec. 1 Corres

Sports Agency Surjeman by error of constraints Washington D.C.

Pub Date AN

400p. For related documents say \$1.5000 1928 (94). Contains numerous light type Books (0)(0)

EDRS Price - MF01 PC16 Plus Postage.
Descriptors \*Arithmetic \*Creometry losers of Education Junior High Schools Measuremy -Number Concepts Secondary Education undary School Mathematics, Statistics "Teach tik Crantes

Identifiers "School Mathematics Study Group This text was written under the suspicious School Mathematics Study Group (SMSG) is a means for preparing teachers to teach the 15M collect Mathematics for Junton High School Scientiff. Included throughout are comments on suggested methods of presenting material to severith gridlers In this text, class exercises are interspensed through out, with answers at the conclusion of each chapter Answers to the exercises at the end of cach in garer are tound at the end of the book. The text was written with the thought that an instructor would be available, though sufficient details have been p sented so that a teacher should be able to master the material independently. The material is the mark should help any teacher teach a modern approach to mathematics that deals with (1) an emphasis on the rationale of the fundamental operations (2) a discussion of properties and structure of the comsystem. On attention to concepts of non-more as we have netric geometric, and (4) exploration of other systems of numeration as a device for strengthening the understanding of our lawn lie, ma-System (Author RH)

2918 LD 134 473

Bothamies, Herbert

Three-Year Sequence for High School Mathematics. Course 1.

ics, Course I.

New York State Education Dept., Amin's distributed of General Education Cartrigue in Dissessment of Bullion Oct 16

Note 40p

Pub Date Oct 16

Note 40p

Pub Type Guides General (1989)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Carriculum "Curriculum Guides Grade 9, Instruction Mithematics Education Program Descriptions Neumatics Education.

Program Descriptions, Secondary Established \*Secondary School Mathematics Training Grades, Units of Study Identifiers New York

This curriculum guide covers Course For a miss sear sequence for high school mathematics in New York which was intended to provide an alternative to the regular Regents sequence of roots organs and deventhigrade mathematics. A feeting of some and content for Course has provided a congramma-



suggested time allotment. Four mathematics units are covered, logic; aspects of algebra and geometry; probability, permutations, and statistics; and rectangular coordinate systems. For each of the units, the general goal for that unit and the material to be covered are discussed. Some teaching suggestions are given. Appendix I summarizes items generally required in a traditional ninth-grade algebra course but which are not required in Course I of this program. Appendix 2 suggests other possible orderings for topics in the course outline. (DT)

ED 123 082

Coxler. Norma, Ed. Individualized Math Problems in Trigonometry.

Oregon Wo Fech Mathematics Problem Sets.
Oregon Math Education Council, Salemi, Oregon State Dept. of Education, Salem. Career and Vocational Education Section, up Date - 74

Pub Date -

Note Cop: For related documents, see SE 020 621-648

Available from Continuing Education Publica-tions, P.O. Box 1491, Portland, Oregon 97207 Pub Type- Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors -- Individualized Instruction, \*Instructional Materials. Mathematical Applications, Mathematics Education, \*Problem Sets, Secondary Education. \*Secondary School Mathematics.
\*Trigonometry. \*Vocational Education
Identifiers - \*Oregon Vo Tech Math Project

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem pack ages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. Problems in this volume require the use of trigonometric and inverse trigonometric functions. They are drawn from eleven vocational areas: machine tools, drafting, industrial mechanics, auto mechanics, avaiation mechanics, forest products, forestry, fire and police science, diesel mechanics, electronics, and agriculture. (SD)

2920

ED 120 670

Earle, Richard A.

Teaching Reading and Mathematics. Reading Aids Series.

Pub Date

Note 91p.

Available from International Reading Association, 800 Barksdale Road, Newark, Delaware 1971; (Order No. 219, \$4.50 nonmember, \$3.00) member)

Pub Type - Guides - General (050)

EDRS Price - MF01/PC04 Plus Postage.

Descriptor: --Class Activities. \*Content Area Reading. \*Instructional Materials, Intermediate Grades, \*Wathematics Instruction, \*Reading Instruction

struction, Reading Skills, Secondary Education, Teaching Guides, Teaching Methods This monograph is designed to furnish classroom teachers with insight and ideas for teaching reading more carefully by emphasizing the mat and how aspects of instruction. It is written for the teacher of mathematics in the middle and secondary grades who realizes the important relationship between effective reading skills and learning mathematics. At least one instructional suggestion per page is con-tained in what is intended as a practical and usable teaching guide. The guide includes such topics as learning to read mathematical symbols, skills for developing vocabulary, analyzing the meaning of words and comprehending the relationships among concepts, and assessing students' abilities. (RB)

292 î ED 107 529

Kolb, John R. Waters, William M., Jr.
The Secondary School Mathematics Curriculum. Pub Date Nov 74

Note 60p; Report to the Division of Mathemat-ics, North Carolina State Dept. of Public Instruction and the State Advisory Council on Secondary School Mathematics, November 74

School Mathematics, November /4
Pub Type Guides - General (050) EDRS Price - MF01 PC03 Plus Postage.

Descriptors - \*Curriculum, Curriculum Development, Educational Objectives, Instruction, \*Mathematics Education, \*Secondary Education, \*iecondary School Mathematics, \*State Curriculum Guides, Student, Centered Curriculum ulum Guides, Student Centered Curriculum, Ter. books

This report begins with a brief historical sketch of the origins of the mathematics curriculum and the

responsiveness of mathematics curriculum to the demands of society. The current North Carolina mathematics curriculum is then described and evaluated. A "strands" approach to the development of curriculum and a framework for planning are then proposed. This framework is based on consideration of courses as student-centered (e.g., applied mathematics, consumer mathematics), subject-centered (e.g., algebra I, geometry) and mixed (e.g., business mathematics, applied geometry). The rationale for these strand" is provided, and sequences of courses which students might elect are diagrammed. In-dividual courses, including a remedial clinic, are then described. Descriptions include sample materis als where available, discussion of objectives and topics to be covered, and an overview of special issues related to each course. (SD)

2922 ED 102 023 Secondary Schools Curriculum Guide, Mathematics. Grades 10-12. Revised.

Cranston School Dept., R.I. Spons Agency Bi-reau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date --- 74

Note - 198p : This is a revision to ED 077 740; Best Copy Available

ype -- Guides - General (050)

Descriptors—Algebra, "Behavioral Objectives, Calculus, Computers, Curriculum, "Curriculum Guides, Geometry, Mathematics Education, Number Concepts," Objectives, Probability, Secondary, Education, Science of Sc ondary Education, \*Secondary School Mathematics. Trigonometry

Identifiers—Elementary Secondary Education Act Title III. General Mathematics, \*Objectives Bank Behavioral objectives for grades 10 through 12 are specified for plane geometry, algebra, general mathematics, computer mathematics, slide rule mathematics, basic college mathematics, trigonometry, analytic geometry, calculus and probability. Most sections present material in terms of portions of a school year. At least one major objective is stated for each section of the guide, encompassing the en-tire work for the unit. Several more specific objectives are also included in each section, intended to indicate level of learning, content, and means of evaluation. Each objective is followed by a list of suggested activities. (SD)

ED 102 022 Secondary Schools Curriculum Guide, Mathematics, Grades 7-9. Revised.

Cranston School Dept., R.I.

Spons Agency—Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C. Pub Date-

Note-181p.: This is a revision to ED 077 739

Note—1819. This is a revision to ED 07 739
Pub Type— Guides - General (050)
EDRS Price - MF01/PC0 Plus Postage.
Descriptors - Algebra. \*Behavioral Objectives.
Curriculum, \*Curriculum Guides, Geometric
Concepts, Junior High Schools, \*Mathematics
Education, Number Concepts, \*Objectives, \*Secondary School Mathematics, Set Theory Geometric

Identifiers - Elementary Secondary Education Act Title III, \*Objectives Bank

Behavioral objectives are specified for 82 topics in mathematics to be covered in grades 7 through 9. A general objective is given for each, followed by specific behavioral objectives with suggested activities. Topics include number properties and operations, geometry, number theory, algebra, set theory, ratio, proportion and percent, the metric system, etc. A separate college preparatory sequence is outlined. which includes units on trigonometry, metric geometry, linear and quadratic equations, logic, exponential and logarithmic functions, complex numbers, etc., in addition to those topics included in the regular course. (SD)

2924 ED 093 707

Kramer, Lynda H. Math Review. Mathematics: 5265.01. Dade County Public Schools, Miami, Fla Pub Date 72

Note - 23p.; An Authorized Course of Instruction

For the Quinnester Program

Pub Type — Guides + General (050)

EDRS Price - MF01/PC01 Plus Postage.

Descriptors—Algebra, Basic Skills, Behavioral Objectives, \*Curriculum, Geometric Concepts, Instruction, \*Mathematical Ap Mathematics Education, \*Objectives, Solving, \*Secondary School Ma Applications, Mathematics. \*Teaching Guides, Tests

Identifiers \*Quinmester Program

Designed for the students who have taken algebra and geometry and who need to strengthen their skills in problem solving and mathematical applications, this guidebook on minimum course content emphasizes the kinds of skills and procedures used in college placement tests. Overall course goals are specified, a course outline is provided, performance objectives are listed, and references keyed to the performance objectives are provided. Also included is a sample test with in answer key (JP)

ED 093 698 Trigonometry and Advanced Math. De Soto Parish Curriculum Guide.

DeSoto Parish School Board, Mansfield, La Spons Agency - Bureau of Elementary and Secondary Education (DHEW OE), Washington, D.C.

Pub Date Aug 71 Note - 212p

Pub Type - Guides - General (050)

EDRS Price - MF01 PC09 Plus Postage. Descriptors - "Algebra, "Curriculum Guides, Geometric Concepts, Graphs, Instruction, Lesson Plans, \*Number Concepts, Number Systems Probability, \*Secondary School Mathematics. Teaching Guides, Teaching Methods, "Timonometry

Identifiers - Elementary Secondary Education Act Title I. \*Functions (Mathematics)

The primary aim of this guide is to aid teachers in planning and preparing a senior high school mathematics course for students preparing for college work. It is divided into separate one-semester courses of seven chapters each. The first-semester course consists of a traditional approach to the introduction of trigonometry and trigonometric functions. The second-semester course represents a new approach, treating algebra, trigonometry, analytic geometry, and calculus in a unified manner rather than as four separate sections. Fundamental notions of the subject are unified into a sequence of topics beginning with the consideration of the real number system and the algebraic operations. Emph. is is placed on the importance of being able to visualize and graphically represent mathematical expressions. Ideas of algebra and geometry are presented in the study of linear, quadratic, and general polynomial functions. Permutations, combinations, and probability are treated as additional topics. For both courses, behavioral objectives are stated for each chapter and a set of abbreviated daily lesson plans is presented. (JP)

ED 091 234

Caldwell, Christine, Comp. And Others Curriculum Guide for Mathematics in Union Parish High Schools.

Union Parish School Board, Farmerville, La. Pub Date- 72

Note-- 228p. Pub Type- Guides - General (050)

EDRS Price - MF01 PC10 Plus Postage.

Descriptors - \*Algebra, Curriculum, \*Curriculum Guides, \*Geometry, Mathematical Applications, Objectives, \*Secondary School Mathematics, \*Vocational Education Identifiers -- Elementary Secondary Education Act

Title III. General Mathematics

This basic guide to a complete secondary mathematics curriculum is designed to ensure that each student will be presented uniform mathematical concepts and principles, geared to his individual needs, abilities, and interests. The guide is not planned for use with a particular textbook; instead, it is to serve as a core around which each teacher can develop his program of instruction using a wide range of supplementary materials. Two program sequences are presented, one for college-preparatory students and one for vocational students. Mathematical procedures and concepts have been developed and arranged in a learning sequence. As a student completes one phase of the program, he can move immediately to the sequence that follows. The college-preparatory sequence is a continuum with interwoven new mathematical concepts presented by rigorous methods of deductive reasoning. The vocational-preparatory continuum is developed around problems that relate to occupations and careers and provides a review of the basic fundamentals of mathematics. Behavioral objectives are stated and resource books are listed for topics. (JP)



FD 089 040 Trigonometry and Analytic Geometry: Curriculum Guade.

Hartundate Independent School District, San Antorro. Tex. Cateer Education Center

Spons Agency Offi Washington, D.C. Office of Education (DHEW), D.C., Texas Education Agency. Vastin Dept of Occupational Education and Austra Lechnology of

Pur Date 310 -[()e)m

Note 1,009
FDRS Price - MF01 PC04 Plus Postage.
Descriptors "Analytic Geometry Audiovisual Aids, "Career Indication "Clariculum Grades, "Edicational Materials," Descriptors Instructional Materials, p. 1977. Partormolee Specifications Resource Materials, \*Secondary Education, Teaching Methods \*Secondary Education, Te They no betty Education Study

landifiers Texas

The guide Cine-quatter trigonometry course, two usuaffor an afacts, geometry courses provides more subject matter and career preparation assistance for afford fed mathematics leachers. It is attaiged in a frail cell mathematics teachers at its arranged in certifial commitment relating curry more unconcerns at the first months and ariagital demonstry the curry moneth mance objectives is meet concepts and teaching activities suggested teaching methods, and another descriptions. from some and resource materials. Space is provided for feachers' notes which will be useful when the stade is revised (FA).

2928

ED 984 100

Borthington Carolin B

Practical Trigonometry, Mathematics (Experimental); 5219.05.

Date County Public Schools, Miami, Fla. P. S. Date. 172

Note 18p. An Authorized Course of Instruction for the Quintiester Program
EDRS Price - MF01 PC02 Plus Postage

EDRS Price - MF01 PC02 Plus Postage

Descriptors Behavioral Objective Correction, Instruction, Mathematics Education, Objectives, \*Secondary School Mathematics, "Traching Guites, Tests, "Trigonometry

Identifiers Logarithms, "Quinmester Program Designed for the student who has competence in general mathematical skuls and who has interest in solving practical problems, this guidebook on minimum course content seeks turther development of computational and problem solving skills through the applications of trigonometry and base ten logarithms. Overall course goals are specified, a course outline and suggested teaching strategies are prossted, performance objectives are listed and text refcrences and a sample posities; are included. (JP)

2929

ED 080 363

Matterierm, James Third Year Math [Subuarita High School Currer Curriculum Project).

National High School District 136 Ariz Pub Date [73] Note [74]

EDRS Price - MF01 PC03 Plus Postage.

Descriptors: Activity Units, \*Curriculum Gindes, \*Instructional Materials, Mathematics Education, Matrices, \*Secondary School Mathematics, feather Developed Materials, "Units of Study, Winkshoots

Istentifiers Functions (Mathematics), Logarithms This volume contains three teacher-developed units for eleventh grade mathematics students. It serves as an introduction to logarithms, matrices, at d functions. Units include statements of objectives, content discussions, worksheets, and exercases. In the logarithm unit the emphasis is on all allation, while in the matrices and functions attained the commercial and functions development and proof are considered as well-Refull divoluties to the series are SE 016-615, SE 016-517, and SE 016-618, (LS)

ED 080 362

Mades in James

stathematics [Sahuarita High School Career Curriculum Project).

Sabuarita High School District 130, And P.5 Date

2945

EDRS Price - MF01-PC12 Plus Postage.

EDRS Price - MF01-PC12 Plus Postage,
Descriptors - Activity Units, Curriculton Guides,
\*Instructional Materials, Logic, \*Mathematical
Applications, \*Mathematics Education, \*Secondary School Mathematics, Leacher Descriped
Materials, Engonometry, \*Units of Study
This is a collection of anits prepared by high
school mathematics teachers to be used as a "career
curriculum" guide. Each unit contains a statement

of objectives, a discussion of the content, activity sheets and exercises. The column is organized into clusters so that an individual may choose the parts surfect to individual needs. Major topic cincladed are logic, talto, and proportion, volume, Boolean algebra, trigonometry, with emphasis on use of tables and with applications in the machine trades and in surveying, and vector mechanics, primarily determinution of forces by the parallelogram method and by resolution into components and uso including the use of dot product. Tross product, and actors mints. Related volumes in the series, see \$1,018,616. through SE Olfa AlX of Se

ED 070 908

Algebra: Level II, Unit 8, Lesson 1; Powers and Roots: Lesson 2: Geometry: Lesson 3: Number Series: Lesson 4, Advanced General Education Program, A High School Self-Study Program.

Manpower Administration (DOI), Washington D. C Job Corps

Report No. PM-431-57, PM-431-58, PM-431-80 PM #11.50

Par Date No. 59

445

EDRS Price - MF01 PC08 Plus Postage.

Descriptors: \*Academic Education, Achievement Fests, Algebra, \*Autoinstructional Aids, \*Course Content. Credit Courses, \*General Education, Geometry, "Independent Study, Mathematics Education, Number Systems, Secondary Education, Secondary School Mathematics

This self-study program for high-school level contains lessons on Algebra, Powers and Roots, Geometry, and Number Series. Each of the Jessons concludes with a Mastery Test to be completed by the student (Db)

ED 067,298

Johnson, David J

Trigonometry 2, Mathematics: 5219.12.

Dade County Public Schools, Miami, Flat Pub Date 71 Pab Dute

Note: 25p. An Authorized Course of Instruction for the Quinmester Program

EDRS Price - MF01 PC01 Plus Postage. Descriptors Behavioral Objectives, \*Curriculum,

Instruction, Mathematics Education, \*Objectives, Secondary School Mathematics: \*Teaching Guides, Tests, \*Trigonometry

Identifiers \*Quinmester Program

This booklet is the second of a two-part sequence of minimum content for trigonometry. It includes sum, difference, double-angle, and half-angle formulas, Law of Sines, Law of Cosines, inverse trigonometric functions, polar coordinates, and DeMoivre's Theorem Goals, performance objectives for each unit, a course outline, references to state-adopt ditexts, and teaching suggestions are given. Sample obetests and posttests are included along with an anni cared list of five references. For the other booklet in this sequence, see SE 014 89. (DT)

2933

ED 067 297

Johnson, David J.

Trigonometry 1, Mathematics: 5219.11.

Dade County Public Schools, Miami, Fla Pub Date

Note 25p. An Authorized Course of Instruction for the Quinnester Program

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Behavioral Objectives, \*Curriculum, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics, \*Teaching Guides, Tests, \*Trigonometry

Identifiers \*Quinmester Program

The first of a two-part sequence for the student who has had difficulty in second-year algebra, this booklet covers definitions and measurement of angles (in degrees and radians), the trigonometric functions, solving trigonometric equations and graphing functions, identities, and computation with bise ten logarithms. Overall goins for the course are stated and performance objectives for such unit are specified. A course outline, references to state-adopted texts, and teaching suggestions are listed. Included are sample prefests and and an annotated list of five references other booklet in this sequence, see SF 611, 400 (DI)

177 ~

2934

J-10 059 861 Central Iowa Low Achiever Mathematics Project Area Measurement: Graphing Pictures: An Introduction to Flow Charting; First Probability Program.

Central Iowa Low-Achiever Mathematics Project, Des Monnes

Spots Spency Bureau of Flomer tary and Second-ary Education (DHFW OF), Washington, D.C. Pub Date 69

EDRS Price - MF01 Pv 07 Plus Postage

Descriptors: Arithmeti, Grade Torrate S, Grade 9, Grapps, Irst action, "Instructional Materials "Low Achievement, "Mathematics, Measurement Probability "Secondary School Mathematics

ies. The materials in these units are designed especially for the low achiever statent in jurior high school mothematics. These materials are intended to be a source of new riders for feachers who are fromg to encourage interest, crithisiasm, and parleapation from low achieving students in mathematics. The four outs in this collection contain mathematical materials involving area measure. ment, graphing probability, and an introduction to low chatting, this work was prepared order an ESEX Inte life ontract (RP)

ED 055 913

Tenth Year Mathematics.

2935

New York State Education Dept., Amany, Bureau of Secondary Curriculum Development Pub Date

Note: 32p., Reprint from the syllabils, Mathematics 10-11-12

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Algebra, Anthmetic, \*Curr culum Guides \*Geometry, \*Grade 19, Instruction,

"Mathematics, Teaching Methods The bookiet presents the minimum material for which students are responsible on the Tenth Year Regents examination of the state of New York. The syllabus is an attempt to integrate plane geometry with arithmetic, algebra and numerical trigonometry brought about by (1) greater use of fractions and percents in mensuration problems, (2) use of approximate number, (3) use of algebraic symbolism and proof, (4) use of algebraic equations in the solu-tion of geometric problems, and (5) an introduction to coordinate geometry. The scope of content is transition from informal to formal geometry, formal geometry (triangles, inequality, parallelism and perpendicularity, angle sum, locus, circles, ingle measurement, similarity, areas, regular polygons and measurement of oncless constructions, fortimus, arithmetic, algebra, trigonometry, and coordinate geometry. Suggestions for teaching, for time schedule and for sequencing a cancilided (JG)

2936 FD 055 847

Ruschkon William F

The Professional's Guide for Instruction in Secondary Mathematics.

Kent Public Schools, Was-Pub Date [71] Note 368p

Descriptors Curriculum, \*Curriculum Guides, Instruction, Mathematics, \*Secondary School Mathematics, \*Teaching Guides

Presented is a general guide and syllabus for each or 14 secondary school mathematics courses offered by the Kent School District Statements or the philosophy, organization, implementation, course sequences, requirements, guidance, and evaluation involved with the program are included involved with the program are included the courses for which a complete syllabus is offered michigan Accidented Math 7, Modern Math 7, Basic Math 7, Modern Math 8, Basic Math 9, Basic Math 1/2, Prev Vlgebra 1/2, Algebra 1/2, Geometry 1/2, Algebra 3/4, Consumer Math, Erigoromatical Math nometry, and Mathematical Analysis (JG)

Nicholson, Alan D.

ED 054 962

The Math Resource Center for Secondary Schools Montana State Dept. of Public Instruction, Heiena Pub. Date: 71 Pub Date

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Bibliographics, \*Frinchment, \*6. structional Materials, \*Resource Centers, \*Resource Materials, \*Secondary School Mathemanes

This document suggests ways of setting up a "Math Resource Center" and ideas for particular



resources. Briefly discussed are the following, purpose of a resource center, supervision, physical facilities; and materials-library, math lab and games, computer, autio-visual materials, and office machines. Lists in the appendices include journals, paperback bookless, selected bibliographies, selected sources of math lab equipment, games, and enrichment materials, commercial producers of materials for mathematics teaching, resource books, and commercially produced activity eards and packages (Author)

2938 Brant, Vincent ED 053 927

Trigonometry, A Tentative Guide Prepared for Use with the Text Plane Trigonometry with Tables. Baltumore County Public Schools, Towson, Md Pub Date | 65 Note 99n

Available from Baltimore County Public Schools, Office of Curriculum Development, Towson, Maryland 21204 (52 00)

EDRS Price - MF01 PC04 Plus Postage,
Descriptors Curriculum, \*Curriculum Guiles, Instruction, Mathematics, \*Secondary School

Mathematics, \*Teaching Guides, \*Trigonometry This teacher's guide for a semester course in trigo-nometry is prepared for use with the text "Plane Trigonometry with Tables" by E.R. Heineman In-cluded is a daily schedule of topics for discussion and homework assignments. The scope of each lesson and teaching suggestions are provided. The content for the course includes trigonometric functions. solution of right triangles, trigonometric equations and identities, oblique triangles, and inverse trigonometric functions. Also included are two supplementary units on special right triangles and set theory (Author CT)

2939 ED 052 021

Helwig, G. Alfred. Shepperd, Anna G. Review of Academic Mathematics, A. Tentative Guide.

Baltimore County Public Schools, Towson, Md.

Pub Date Jan 6"
Note 95p
EDRS Price - MF01 PC04 Plus Postage.
Descriptors "Algebra, "Course Content, "Geometry, Instructional Materials, Mathematical Course Content, "Mathematical Course Course Mathematical Course Co Education, Number School Mathematics, conts. Mathematics Concepts Secondary Teaching Guides

This teaching guide outlines a semester course for those students who need review work in concepts from algebra and geometry. Successful completion of this material would serve as a prerequisite to the study of trigonometry. Sequence, textbook references, and time allotments are suggested. Units studied are the real numbers, operations on the real numbers, relations, functions, and graphs; first-der ce equations, inequalities, quadratic equations, and logarithms. Appendices provide instruction in set concepts, properties of right triangles, relations, functions, and graphs (RS)

2940 ED 050 071 Wyoming Mathematics Curriculum Guide, Grades 7-12.

Wyoming State Dept of Education, Cheyenne Pub Date ~45

EDRS Price - MF01 PC04 Plus Postage.
Descriptors Auto Mechanics, \*Curriculum EDRS Price - MF01 PC04 Plus Postage.
Descriptors Auto Mechanics, "Curriculum Guides, Eleutronics, Engineering Drawing, Grade 7, Grade 8, Grade 9, Grade 10, Grade 11, Grade 12, Graphic Arts, "Industrial Education, "Mathematics, "Secondary School Mathematics, Trade and Industrial Education, "Vocational Education GRADES OR AGES 7-12, SUBJECT MATTER Mathematics ORGANIZATION AND PHYSICAL APPEARANCE The guide has an introduction and four chapters. 1) A Sample Mathematics Curriculum, 2) The Exceptional Student in Mathematics, 3) Mathematics Components for Comprehensive Occupational Education, 4) Reference Materials. The guide is printed and spiral ence Materials. The guide is printed and spiral bound with a soft cover. OBJECTIVES AND AC-LIVITIES. The guide makes no attempt to detail objectives of activities for each grade. General outbines are given for the low achiever and the mathematically talented in chapter 2. Chapter 3 lists activities and the related mathematical concepts for auto mechanics electronics (electricity-radio), graphic communications, hospitality occupations, industrial drawing and drafting, and metal processing occupations. INSTRICTIONAL MATERIing occupations. INSTRUCTIONS CONTROL ALS ALS Chapter 4 lists texts, pamphiets, periodicals,

sources of free and mexpensive materials, sources of transparencies for the overhead projector, sources of models and equipment, computer training kits, computer companies, and toys, games, and purries for learning mathematics. STUDENT ASSESS-MENT: No specific provisions are made for evaluation (MBM)

ED 050 057 Mathematics Curriculum Guide, Mathematics IV. Gary City Public School System, Ind. Pub Date 69

300

Note 36p EDRS Price - MF01 PC02 Plus Postage. Descriptors \*Achievement Tests, \*Curriculum Guides, \*Grade 12, \*Mathematics, \*Secondary School Mathematics GRADES OR AGES Grade 12, SUBJECT MATTER, Mathematics, ORGANIZATION \*\*NO DUNCTO 1 ADDEAD ANCE The subject AND PHYSICAL APPEARANCE. The subject matter is presented in four columns; major areas, significant outcomes, observations and suggestions, and films and references. The topics include setsrelations-functions, circular functions, graphs of circular functions, inverses of circular functions, tigonometric functions of angle measures, introduction to vectors, the polar plane, complex numbers, and infinite series. The guide is mimeographed and spiral bound, with a soft cover. OBJECTIVES AND ACTIVITIES: Objectives for each major area are stated in behavioral terms. Activities are suggested but not listed in detail INSTRUCTIONAL MATERIALS. Textbook references are given for cach major area and there is a brief hibliography. No audio-visual materials are listed STUDENT AS-SESSMENT. Tests on major areas, with answers are included. (MBM)

2942 ED 049 049 Experiences in Mathematical Discovery, Unit 6, Mathematical Thinking,

National Council of Teachers of Mathematics, Inc., Washington, D.C.

Pub Date

Note 63p

Available from National Council of Teschers of Mathematics, NEA Publications, 1201-16th St...

N.W. Washington, D.C. 20036 (\$1.00) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors "Discovery Learning, Grade 9, "In-structional Materials, "Mathematics Materials, Modern Mathematics, "Problem Solving, Re-source Materials, "Secondary School Mathemat-

This is the sixth in a series of ten self-contained units designed for use by students in ninth grade general mathematics classes. This unit is divided into eight sections dealing with different types of mathematical thinking. Some topics presented include functions, permutations and combinations, symmetry, inductive thinking, and logic. Though the topics are standard they are dealt with in nontraditional methods emphasizing discovery learning. Included are many diagrams, exercises, and topics for discussion. (CT)

2943 ED 048 143 The Secondary Mathematics Laboratory Strategy Manual.

Brevard County Board of Public Instruction, Titusville, Fla

Pub Date 30 Jun 70 Note - 58p

EDRS Price - MF01 PC03 Plus Postage.

Descriptors \*Curriculum Guides. \*Learning Laboratories. \*Mathematics Curriculum. Laboratories, \*Mathematics Curriculum, \*Remedial Mathematics, \*Secondary School Mathematics

GRADES OR AGES 7-12 SUBJECT MAT-TER Mathematics laboratory CRGANIZATION AND PHYSICAL APPEARANCE: The guide has 10 sections (1) introduction, explaining the nature of the student and the duties of the teacher; (2) personnel and their duties; (3) physical characteristies of the lab; (4) testing program; (5) evaluation procedure, (6) record keeping; (7) types of instruc-tion, (8) initial organization, (9) description of the program, (10) recommendations for equipping a secondary mathematics laboratory classroom. The guide is veroxed and spiral-bound with a soft cover OBJECTIVES AND ACTIVITIES. No detailed objectives are set out, but the program is designed to meet the needs of the low achiever through the laboratory approach. Examples of activities are given in section 9. INSTRUCTIONAL MATERIALS. Section 10 contains a tentative listing of

equipment divided into two categories essential and desirable STI DENT ASSESSMENT Procedures for evaluation are set out in sections 5 and 6. OMBNO

ED 046 775 Unified Modern Mathematics, Course 2, Part 2. Secondary School Mathematics Curriculum Improvement Study, New York, NY

Spons Agency Columbia Unix, New York, N.Y.
Teachers College; Office of Education (DHFW),
Washington, D.C. Bureau of Research
Bureau No. BR-7-0711

Pub Date 68 Contract OEC-1-7-070711-4420 Note 304p

EDRS Price - MF02 PC13 Plus Postage.
Descriptors \*Curriculum Development, Geometcarricular Development, Ceonecists, Instructional Materials, Mathematics, Modern Mathematics, Probability, \*Secondary School Mathematics, Statistics, \*Textbooks, Transformations (Mathematics)

Topics included in Part 2 of Course II are real functions, descriptive statistics; transformations in the plane, length, area, and volume, combinatorics, and mass points. The chapter on real functions ininudes a discussion of properties of functions, composition of functions, inverses of functions and other topics. The chapter on descriptive statistics discusses the graphical representation of sets of data, summation notation, the arithmetic mean, measures of dispersion, and Chebyshev's Inequality Reflections, translations, rotations, dilations, and similarities are introduced in the section on transformations of the plane. Lengths of line segments, areas of various geometric regions, and volumes of geometric solids are also studied. The Combinatorics chapter considers the counting principle, permutations, and the binomial theorem. The appendix offers a discussion of mass points in the plane and in space (FL)

2945 ED 046 774 Unified Modern Mathematics, Course 2, Part 1.
Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.
Spons Agency Columbia Unix, New York, N.Y.
Teuchers College Office of Education (DHEW),
Washington, D.C. Bureau of Research
Bureau No. BR-7-0711
Pub Date 69
Contract OEC-1-7-070711-4420
Note 3379
EDRS Price ME02 PC 14 Phys. Band Unified Modern Mathematics, Course 2, Part 1.

EDRS Price - MF02 PC14 Plus Postage.

Descripto - Algebra, \*Carriculum Development, Geometric Concepts, Geometri, Graphs, \*Instructional Materials, Mathematical Logic, \*Modern Mathematics, \*Secondary School Mathematics, \*Textbooks

This is 'art 1 of the second course in a series which focuses on holding fundamental mathematics.

which focuses on building fundamental mathematical structures. Topics considered in this book inciude an introduction to mathematical logic and mathematical proof, a continuation of the study of groups, an introduction to axiomatic affine geometry, fields, the real number system, and coordinate geometry. The discussion of groups contains an example of a non-commutative group, theorems about groups, and the concept of isomorphism. Axioms for an affine geometry are given together with some logical consequences of these axioms and finite and infinite models for the axioms. The chapters on fields and the real number system include solving equations and inequalities, properties of the real number system and calculation with irrational numhers (FL)

ED 046 773 Unified Modern Mathematics, Course 2, Teachers Commentary.

Secondary Lefte of Mathematics Curriculum Improvement Study, New York, N.Y. Spons Agency - Columbia Univ., New York, N.Y.

Spots Agency Columbia Univ. New York, N.Y.
Teachers College., Office of Education (DHEW),
Washington, D.C. Bureau of Research
Bureau No. BR-7-0711
Pub Date [70]
Contract OEC-1-7-070711-4420

Note 385p. EDRS Price - MF03 Plus Postage, PC Not Available from EDRS.

Descriptors Course Descriptions, \*Curriculum Guides, \*Instruction, \*Instructional Materials, Mathematics, \*Secondary School Mathematics, Teaching Guides

This commentary is designed for use with "Unified Modern Mathematics, Course II," Parts 1 and



2. As in the commentary for "Course I." statements of the specific purposes and goals of each section of every chapter are presented. Also included eye suggestions for teaching the concepts presented in each section, time estimates for each section, sile gested instructional aids to presenting various concepts, and references for further study. Char et examinations are provided which constitute com-prehensive tests for each chapter. Not available in Sandcopy due to marginal legibility of original document [  $(\mathbf{FI})^{\mathbf{T}}$ 

2947 ED 046 772 Unified Modern Mathematics, Cour e 1, Part 2, Secondary School Mathematics Curriculum Im-provement Study, New York N.Y.

Agency Columbia Univ., New York, NY Teachers College Office of Education (DHEW), Washington, D.C. Bureau of Research Bureau No., BR-7-0711

Pub Ditte Inst

Contract | OEC-1-7-070711-4420 403p

EDRS Price - MF03 PC17 Plus Postage.

Descriptors Algebra, \*Corriculum Development, Graphs, \*Instructional Materials, \*Modern Mathematics, \*Secondary School Mathematics, Set Theory, "Textbooks

Part 2 of Course I includes a study of set theory, transformations of the plane, properties of lines. planes, line segments and angles, elementary numher theory, and rational numbers. Decimal fractions, ratio and proportion, percent, and presenting data using graphs are also presented (FL)

2948 ED 046 771

Unified Modern Mathematics, Course 1, Part 1. Secondary School Mathematics Curriculum Improvement Study, New York, N.Y.

Spons Agency Columbia Univ. New York, S.Y. Teachers College: Office of Education (DHEW), Washington, D.C. Bureau of Research Bureau No. BR-7-0711

Pub Date | 68 Contract | OEC-1-7-070711-4420 Note | 346p

EDRS Price - MF02 PC14 Plus Postage.

Descriptors Aigebra, \*Curriculum Development, \*Instructional Materials, \*Modern Mathematics, Number Systems, Probability, \*Secondary School Mathematics, Statistics, \*Textbooks

This is Part 1 of the first course in a series which tocases on building fundamental mathematical structures. The arithmetic studied in elementary school along with modular arithmetic is examined and set notation and mappings of sets are presented Mathematical group structures are"introduced Points and numbers are related both on a line and in a lattice framework, (FL)

#### 2949 ED 046 770 Unified Modern Mathematics, Course I. Teachers Commentary.

Secondary School Mathematics Curriculum Improvement Study, New York, NY

Spons Agency Columbia Univ., New York, NY Teachers College, Office of Education (DHEW), Washington, D.C. Bureau of Research Bureau No. BR-70/71/1
Pub Date [70]

Contract OEC-1/7-075711-4420 Note 3745

### EDRS Price - MF03 Plus Postage, PC Not Available from EDRS.

Descriptors Course Descriptions, \*Curriculum Guides, \*Instruction, \*Instructional Materials, Mathematics, \*Secondary School Mathematics, \*Teaching Guides

This commentary is designed for use with "Unified Modern Mathematics, Course I." Parts I and 2 included in the commentary are star ments of the specific purposes and goals of each lection of every chapter, suggestions for teaching the concepts presented in each section, time estimates for each section, suggested instructional aids for presenting various concepts, and references for further study Also, suggested chapter examinations are provided which constitute comprehensive tests for each chapter. [Not available in hardcopy due to marginal legibility of original document ] (FI)

2950

ED 046 737

Chapman, Frank L.

The Sea and Modern Man.

Carteret County Public Schools, Beaufort, N.C. Spons Agency Bureau of Elementary and Secondbds. ation (DHEW OE), Washington, D C Date Ving 0 Pub Date Note 25p

Available from Regional Marine Science Project. Carteret County Public Schools, Beautort, N.C. 28516 (Free)
EDRS Price-MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptors Curriculum Guides, Ecology, \*Eie-mentary Science Environmental Educa-tion, \*Instructional Materials, \*Oceanography, Reading Materials, \*Textbooks

Identifiers Elementary Secondary Education Act Table 111

This publication is designed for use as part of a curriculum series developed by the Regional Marine Science Propert. As an informative text for a threeweek unit in marine science for grade six, it considers man's role in using coastal resources and how he affects the marine environments. An ecological approuch to nature is emphasized, stressing the ties between culture, economy, and resource use. Topics are divided into three units. Food and Recreation, Transportation, and Minerals and Conservation Each unit includes a vocabulary, fill-in questions, and disucssion topics. Numerous diagrams illustrate topics discussed. This work was prepared under an ESEA Title III contract. (BL)

2951 ED 036 430

Firl. Donald H. And Others

Experiences in Mathematical Discovery, Units 1-5; Unit 1, Formulas, Graphs and Patterns; Unit 2, Properties of Operations with Numbers; Unit 3. Mathematical Sentences; Unit 4. Geometry: Unit 5. Arrangements and Selections, and Answers for Units 1-5.

National Council of Teachers of Mathematics, Inc. Washington, D.C.

Pub Date - 6 Note 449p. - 6

Available from National Council of Teachers of Mathematics, 1201 Sixteenth Street, N.W., Washington, D. C. 20036 (May be purchased separately)

EDRS Price - MF04 Plus Postage. PC Not Available from EDRS.

Descriptors -Geometry, \*Grade 9, \*Instructional Materials, \*Mathematical Concepts, Mathematical ics. Mathematics Education, Number Concepts, Secondary School Mathematics

This series of booklets is designed for use by students of ninth grade general mathematies. The units are the result of experimental work done by the General Mathematics Writing Project of the Na-tional Council of Teachers of Mathematics. The series treats a variety of topics which are suitable for use with general mathematics students. Each unit is self-contained. The titles of units 1-5 are as follows. Unit 1: Formulas, Graphs, and Patterns: Unit 2: Properties of Operations with Numbers, Unit 3 Mathematical Sentences; Unit 4: Geometry, Unit 5 Arrangements and Selections. Also included is a booklet containing correct answers to exercises in units 1-5 (FL)

2952 ED 026 270

Gelbaum, Bernard B. And Others

[Orange County Science Education Improvement Project Syllabuses, 7-12.]

Orange County Dept of Education, Santa Ana, Calif.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 66 Note 933p

EDRS Price - MF13 PC38 Plus Postage.

Descriptors Algebra, Calculus, Curriculum, Geometry, Instructional Materials, Mathemat-\*Secondary School Mathematics, Teaching Methods

These syllabuses for grades 7-12 were written. evaluated, and revised by a team of writers from the Orange County Science Education Improvement Project (OCSEIP). OCSEIP is a cooperative enter-prise of the University of California (Irvine). Califorma State College at Fullerton, the Orange County Schools Office, and local districts throughout Orange County. These syllabuses were written to help teachers teach the best aspects of recent mathematics programs. Presented are methods of

approach, intintive examples, and applications in mathematics. The content for case syllabilises in-cludes modern mathematical concepts designed for junior and senior high school programs. (RP)

2953 ED 026 236 Guidelines for Mathematics in the Secondary South Carolina State Dept. of Education, Columbia

Pub Date 65

EDRS Price - MF01 PC66

Descriptors: Advanced Pin and Stades, Analytic Geometry, Course Contrar, Curriculum, \*Curriculum Guides, Geometry, Listract. Instructional Materials, \*Mathematics, \*Number Concepts, Number Systems, \*Secondary School Mathematics Mathematics

Identifiers South Carolina

This guide contains an outline of topics to be incruded in individual subject areas in secondary school mathematics and some specific suggestions for teaching them. Areas covered include (1) fundamentals of mathematics included in seventh and eighth grades and general mathematics in the high school. (2) algebra concepts for courses one and so, (3) geometry, and (4) advanced mathematics The guide was written with the following purposes in mind. (1) to assist local groups to have a basis on which to plan a mathematics course of study, (2) to give individual teachers an overview of a particular course or several courses, and (3) to provide specific suggestions for teaching such topics (RP)

2954 ED 024 600

Mathematics 9th Year.

New York City Board of Education, Brooklyn, N. Y. Bureau of Curriculum Development

Pub Date 66 Note 318p

Available from New York City Board of Education, Publications Sales Office, 110 Livingston Street, Brooklyn, New York 11201 (\$4.00).

EDRS Prize - MF02 Plus Postage, PC Not Availa-

bie from EDRS.
Descriptors "Algebra, Boards of Education, Curriculum, Ceometry, Grade 9, "Instruction, Mathematical Concepts, "Mathematics, Number Concepts, "Secondary School Mathematics, "Teaching Goods." Feaching Guides
ntifiers New York, New York (New York) Identifiers

The Materials in this bulletin indicate suggested teaching procedures needed to implement the teaching of "mathematics, 9th Year" as outlined in Curriculum Builetin No. 3, 1958-59 series. Course of Study Mathematics 7-8-9. Whereas the course of study suggests the application of mathematical principies such as commutativity associativity, and dis-tributivity to algebraic skills and techniques, in this build... detailed methods for helping pupils to develop these mathematical concepts are given. Topics melude symbols, signed numbers, algebra, polynomials, equations and inequalities, equations and graphs, factoring, fractions, real numbers, quadratic equations, ratio and proportion, and indirect measurement. (RP)

2055 ED 021 762 Curriculum and Teaching of Mathematics in the

Higher Secondary Schools. National Council of Educational Research and Training, NIE Campus, New Delhi (India). Dept. of Curriculum and Evaluation.

Spons Agency Office of Education (DHEW), Washington, D.C. Bureau of Research Report No. NIE-HEW-NO-009 Bureau No. BR-5-1402 Note - 426p.

EDRS Price - MF04 PC18 Plus Postage.
Descriptors \*Course Content. \*Curriculum, Cur-Descriptors "Course Content, "Curriculum, Curriculum Development, "Curriculum Gindes, "Mathematics, Objectives, "Secondary School Mathematics, Teaching Methods Identifiers India, India (New Delhi)

This curriculum guide for general mathematics consists of the development of a numer of of basic concepts which are chosen because their relevance to problems of applications. The econsepts are classified under the following straits (1) concept of number, (2) concepts basic to operations, (3) concepts of percent and percentage. 4) concepts basic to geometric form and position. 5) concepts of measurement, (6) concepts of functional relations ship. (7) concepts of comparison, (8) concepts of probability. (9) concepts of set, (10) concepts of limit, (11) concepts of infinity. All the concepts are developed continuously and simultaneously



#### 128 Document resumes

through four years of high school and at varying leves of sophistication and difficulty. (RP)

leves of sophistication and difficulty. (RP)

2957

ED 016 615

AN EXPERIMENTAL COURSE IN MATHEMATICS FOR THE NINTH YEAR. UNIT
12. TRIGONOMETRIC FUNCTIONS.

New York State Education Dept.. Albany.
Pub Date—65

Note—70P.

EDRS Price - MF01/PC03 Plus Postage.

Descriptors—\*Curriculum. \*Curriculum Guides.
Grade 9. \*Mathematics. \*Secondary School
Mathematics. \*Teaching Guides. \*Trigonometry
Identifiers—NEW YORK

THIS TEACHING GUIDE FOR TRIGONOMETRY IS THE FINAL UNIT OF A SERIES
OF 12 UNITS FOR AN EXPERIMENTAL
COURSE IN MATHEMATICS FOR GRADE 9.
BACKGROUND MATERIAL FOR TEACHERS
AS WELL AS QUESTIONS AND ACTIVITIES
FOR CLASSROOM PRESENTATIONS ARE
PROVIDED. A GLOSSARY OF MATHEMATIC
CAL TERMS FOR THE 12 UNITS CONCLUDES THE REPORT. (RP)

# VARIED TOPICS: POST SECUNDARY

3000 ED 180 750 Benjamin, Carl. And Others

College Arithmetic and Pre-Algebra.

Spons Agency National Science Foundation, Washington, D.C. Pub Date [75]

Pub Date [75] Grant NSF-GZ-2998 Note 104p. For related documents, see SE 029 345-348; Colored pages may not reproduce well ub Type Guides - Classroom - Learner (051)

Pub Type Guides - Classroom - Learner (051) EDRS Price - MF01 PC05 Plus Postage. Descriptors - Arithmetic. \*Collège Mathematics. Criterion Referenced Tests. Decimal Fractions. Diagnostic Tests. \*Educational Objectives. Fractions. Geometric Concepts. Higher Education. Measurement. Percentage. \*Performance Criteria. Ristics (Mathematics). Set Theory. Whole Numbers. Numbers Identifiers \*Pre Algebra

Presented are student performance object tas, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in college arithmetic and prealgebra. Topics covered include sets, whole numbers, integers, decimal fractions, fractions, ratio and proportion, percent, powers and roots, the Pythagorean theorem, measurement, and open sentendes (MK)

ED 180 749

Benjamin, Carl., And Others College Arithmetic.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date [75]

Grant NSF-GZ-2998

Note Slp., For related documents, ser SE 029

336-138 Some related documents.

346-348. Some colored pages may not reproduce well

well
Pub Type Guides - Classroom - Learner (051)
EDRS Price - MF01 PC04 Plus Postage.
Descriptors \*Arithmetic, \*College Mathematics,
\*Criterion Referenced Tests, Decimal Fractions,
\*Diagnostic Tests, \*Educational Objectives,
Fractions, Higher Education, Measurement, Percentage, \*Performance Criteria, Ratios (Mathematics), Tests, Whole Numbers,
Presented are student performance objectives, \*\*
Presented are student performance objectives \*\*

Presented are student performance objectives, a student progress chart, and assignment sheets with objective and diagnostic measures for the stated performance objectives in college arithmetic. covered include whole numbers, decimal fract ins, fractions, ratio and proportion, percent, powers and roots, and the metric system of measurement (MK)

3002 ED 146 001

Artis, Margaret, Ed. And Others Sets and Logic.

Institute for Services to Education, Inc., Washington, D.C.

Spons Agency National I (DHEW), Washington, D.C. Bureau No. BR-7-0867 Inst of Education

Pub Date 71 Contract OEC-0-8-070867-0001

Note 191p, Appendix material from ED 084 936. For related documents, see SE 019 971-974 Some pages are marginally legible due to print

Aub Type Guides - General (050)

EDRS Price - MF01 PC04 Plus Postage.

Descriptors \*College Mathematics, Higher Education, \*Instructional Materials, \*Logic, Mathematics, \*Logic, \*Logic, Mathematics, \*Logic, \*Logi ematics, Mathematics Education, Secondary School Mathematics, \*Set Theory, \*Teaching Cruides

Identifiers \*Thirteen College Curriculum Pro-

gram. Part I of this guide develops sets and set operations, listing and describing sets, characteristics of sets, universal empty sets, amons and intersections of sets, properties under set operations, differences and complements of sets. Venn diagram interpretations, set notation, ordered pairs, Cartesian products, and equivalent sets. Part II deals with logic in terms of truth values of statements, conditional statements, conjunctions, disjunctions, equiva-iences, and negations, logic symbols, truth tables, determining logical validity of arguments (including Modus Tollens, Modus Tollendo Ponens, basic syllogisms), universal and existential quartifiers, symhols of quantification, and indirect proof (contradiction). The guide includes basic student exercises, challenges, suggested teacher questions,

and pictorial illustrations of topics. (JW)

ED 144 816 Basic Library List for Four-Year Colleges, Second Edition.

Mathematical Association of America, Berkeley, Cairf. Committee on the Undergraduate Program in Mathematics.

Spons Agency National Science Foundation, Washington, D.C.

Pub Date 76 Grant NSF-HES-620019 Note 111p, For related document, see ED 022 698; Not available in hird copy due to copyright restrictions

The Mathematical Association of Available from Ame a, 1225 Connecticut Ave. N.W., Washington, D.C. 20036 (\$4.50)

Pub Type Reference Materials - Bibliographies

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*Bibliographies, \*Collège Mathematics, Library Acquisition, \*Library Material Selection, \*Mathematics, \*Reference Materials, Undergraduate Study

Identifiers \*Committee on the Undergraduate Program in Math. Mathematical Association of

America

This revision of a 1965 publication lists approximately 700 titles on mathematics for four-year colleges. The titles are grouped by mathematical content, included also are categories for general, foundations, journals, series, films, and foreign-language references. The purposes of the list are to provide (1) students with introductory, collateral, and supplementary reading; (2) faculty with relevant reference inaterial, and (3) general readers with interesting mathematical reading. The list can be used as a guide in updating and extending library holdings. (MS)

ED 137 511

Self. Samuel L. Community College Technical Mathematics Project. Final Report.

Texas A and M Univ., College Station, Coll. of Edu-

cation.

Soons Agency Office of Education (DHEW),
Washington, D.C.

Bureau No. - V0016VZ
Pub Date - Dec 75
Grant - OEG-0-74-1706
Note - 330p.
Pub Type Reports - Descriptive (141)
EDRS Price - MF01 PC14 Plus Postage.
Descriptors - Automotificational Aids Auto Me-

Descriptors Autoinstructional Aids, Auto Mechanics, \*Curriculum Development, Curriculum Guides, Drafting, Educational Research, Electronic Technicians, Individualized Instruction, Instructional Materials, \*Job Skills, Machine Repairers, \*Mathematical Concepts, \*Mathematics Curriculum, Mathematics Materials, Postsecondary Education, Printing, Radio, Refrigeration Mechanics, Research Projects, Skill Development, Technical Education, Television Radio Repairers, Two Year Colleges, Vocational Education, Weld-

The purpose of the research project was to develop an applied or technical mathematics curriculum which would meet the needs of vocational-technical students at the community college level. The research project was divided into three distinct phases: Identifying the mathematical concepts requisite for job-entry competencies in each of the occupational areas, arranging these mathematical competencies into a structure of sequential units, and developing curriculum materials for each of these units. Staff members from 10 community colleges in Texas participated in the survey to help determine and validate job competencies for the occupational areas of diesel mechanics, auto mechanics, radio TV repair, air conditioning, welding, machine shop, printing, drafting, and electronics. The specific project results included (1) a list of mathematical concepts requisite for entry-level competencies in each of the selected occupational areas. (2) a set of structured, sequential technical mathematics units designed to meet the needs of sociational-technical students in the selected occupational areas. (3) curriculum guides for each of the technical mathematics units. (4) self-instructional learning packets for each of the technical math-imatics units, and (5) performance-based pre- and positiests for each of the technical mathematics units. This final report consists of four major compo-

nents: Narrative report; the taxonomy (composite and individual) of competencies (appendix C), five exemplary minimodules (appendix D), and curriculum guides for each of the major divisions of competencies identified in the taxonomy (appendix E). Appendixes C and D constitute most of the document (HD)

3005 ED 137 104

Schoen, Hamid L

Individualized Mathematics Instruction: How Effective Has It Been in Secondary and Post

Secondary Schools?

Pub Date [76]

Note [6p], For related documents, see SE 022 305:306

Pub Type Reference Materials - Bibliographies

EDRS Price - MF01 PC01 Plus Postage.

Descriptors \*College Mathematics, Curriculum, Higher Education, \*Individualized Instruction, Instruction, Mathematics Education, \*Research Reviews (Publications), Secondary Education, \*Secondary School Mathematics

A review of studies comparing self-raced individualized programs with other teaching approaches at the secondary and post secondary level is presented in this paper. First, the teaching approaches used and the statistical design employed in the studies are described. Then, the studies are classified as secondary or post secondary, and the results are reported. Finally, an overall interpretation of the results is given. (DT)

ED 116 929

Posey, Johnsie Jo, Ed. And Others Topics in Mathematics.

Institute for Services to Education, Inc., Washington, D.C.

Spoos Agency National Inst of Education (DHEW), Washington, D.C. Bureau No. BR-7-0867. Pub Date 72

Bureau No. BK-7-900:
Pub Date 72
Contract OEC-0-8-070867-0001
Note 247p: Appendix material from ED 084-936,
Occasional marginal legibility
Pub Type Guides - General (050)
EDRS Price - MF01 PC10 Plus Postage,
Descriptors \*College Mathematics, Experiential Learning, Guides, Higher Education, Instruction
\*Instructional Materials, \*Mathematical Enrichment, Secondary Education, \*Secondary School ment, Secondary Education, \*Secondary School Mathematics, \*Teaching Guides Identifiers Thirteen College Curriculum Program

This manual is a collection of materials and teaching strategies to motivate the development of mathematical ideas in secondary school mathematics program or in beginning college mathematics programs. The unit is written for the instructor with step-by-step procedures including lists of needed materials. The exercises in this unit also appear in the separate publication, "Experiments in Experimental Mathematics." Contents include: geoboard activities in area and with the Pythagorean Theorem; exercises with arithmetic numerals, problems illustrating balance relationships; perfect number exercises, hidden combinations, and coordinate graphing; arrays, polynomials, and finite differences, physical problems that introduce convergent and divergent series; map coloring (Euler's Theorem); the analysis and prediction of patterns of mo-tion with cycloids and area; and the Euler function The unit concludes with more than 18 short investigations such as Tower of Hanoi Puzzl box prob-lem, Kongisberg Bridges problem limits of sequences, and games that employ mathematical analysis. (Author JBW)

3007 ED 115 489

Main, R. E.

The Practical Arithmetic Self-Study (PASS) Course, Book II-Course Lessons,

Navy Personnel Research and Development Cen-ter, San Diego, Calif Pub Date Sep 73

ter, San Diego, Calif
Pub Date Sep 73
Note 224p; For Book I, see SE 019 748
Pub Type Books (010)
EDRS Price - MF01/PC09 Plus Postage,
Descriptors "Arithmetic, Automstructional Ards,
"Basic Skills, "Mathematics Education, Postsecondary Education, "Programed Instruction,
Programed In tructional Materials, "Remedial
Mathematics, "Textbooks
This self-study book contains 25 lessons in practi-

This self-study book contains 25 lessons in practi-cal mathematics. The lessons include (1) multi-plication and division of whole numbers, (2) the four basic operations with fractions and decimals, (3)



understanding mathematics symbols; (4) using formulae and solving and checking simple equation a (5) percentage problems and applications; (6) measurement of length, area, volume using English units of measure; (7) rates and averages; and (8) ratio and proportions. Course description, directions for testing and training, quizzes and answers are bound in a separate book (book I). (JBW)

**Document Resumes** 

3008

130

ED 115 483

Main, R. E The Practical Arithmetic Self-Study (PASS) Course. Book I-Directions and Auxiliary

Navy Personnel Research and Development Cen-

Navy Personnel Research and Desemplical Cele-ter, San Diego, Calif Pub Date Sep 73 Note 97p.; For Book II, see SE 019 852 Pub Type Guides - General (980) EDRS Price - MF01 PC04 Plus Postage. Descriptors \*Arithmetic, Automatical Aids. \*\*Date: State \*\*Mahamatics Education, Post-\*Basic Skills, \*Mathematics Education, Postsecondary Education, \*Programed Instruction, Programed Instructional Materials, Program Guides, \*Remedial Mathematics, \*Teaching

Guides. Guides, Textbooks

This guidebook to a self-study course in practical mathematics contains. (1) the course description; (2) directions for testing and training; and (3) lesson progression sheets, quizzes, quiz answers, and lesson answers. The 25 quizzes cover multiplication and division of whole numbers, operations with fractions and decimals, understanding math symbois, solving equations, percent problems and ap-plications, measurement problems, rates and average problems, and ratios and proportions. The student self-study book is bound separately as book

ED 106 114 Basic Mathematics, Programmed Text. Edition 9. Engineer Subcourse 120-9.

Army Engineer School, Fort Belvoir, Va. Pub Date Apr 74 Note 282p Pub Type - Books (010)

EDRS Price - MF01 PC12 Plus Postage.

\*\*EDRS Price - MF01 PC12 Plus Postage.

\*\*Descriptors \*\*Basic Skills, \*\*Engineering Education, Independent Study, Instructional Materials, \*\*Mathematics Education, \*\*Postsecondary Education. cation, \*Programed Instruction, Textbooks

This course is designed to teach the student to perform basic mathematics operations correctly. It consists of seven lessons and an examination as follows. Introduction to Arithmetic and Whole Numhers. Common Franctions, Decimals, Conversion, Ratios and Proportions, Percentage, Powers and Roots, and the examination. The course uses the technique of programed instruction. (Author KM)

ED 103 089

Oleanna Math Program Smorgasbord (I), Skagit Valley Coll, Mount Vernon, Wash, Note 37p. For a related document, see JC 750

Pub Type Guides - General (050)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors "Autoinstructional Aids, "College Mathematics, "Course Content, Course Descrip-Laboratories, Mathematical Enrichment, Programed Instruction, \*Secondary School Mathematics, Self Directed Classrooms, \*Two Year Coheges

Identifiers \*Starit Valley College WA

This packet is a compilation of short units and uick review assignments used in the Oleanna Math Program at Skagit Valley College (Washington). This math program is taught in an auto-tutorial learning laboratory situation with programmed materials. Each unit of study is contained on a 5" by 8" card, which describes performed card, which describes performance objectives, prerequisites, approximate completion time, and necessary texts and other materials. The masters are supplied in this document on 8.1-2" by 11" stock, but copies may be cut to 5" by 8" sheets to meet access and fling needs. These sheets are easily rearranged for equal needs of the reader, whether he is a student, learning laboratory instructor, or counselor. File categories include mathematical principles, calculating devices, (slide rules, hand cal-culators, etc.), data processing, applications (nurs-ing, business administration, consumer mathematics, science, metric system), fun, miscel
[s. locally developed modules, and local

courses developed from Smorgasbord contents. These sheets may be used to construct personalized courses of study at the rate of 33 clock hours per quarter credit. (DC)

ED 103 088

Coole. Walter A.

Oleanna Math Program Materials.

£

Skapit Valley Coll., Mount Vernon, Wash. Note 178p. For a related document, see JC 750243

Pub Type: Guides - General (050)

EDRS Price - MF01 PC08 Plus Postage.
Descriptors "Autoinstructional Aids, "College Mathematics, Course Content, Course Descriptions, \*Curriculum Guides, Learning Laboratories, Mathematical Enrichment, Mathematics Curriculum, Programed Instruction, \*Secondary School Mathematics, Self Directed Classrooms, Tests, Two Year Colleges

Identifiers "Skapit Valley College WA

This document is a collection of course outlines. syllabi, and test materials designed for several high school level and lower division mathematics courses taught in an auto-tutorial learning laboratory at Skagit Valley College (Washington). The courses included are: Pre-Algebra, Basic Algebra, Plan Geon.etry, Intermediate Algebra, Probability and Statistics, Functions and Relations, Periodic Functions. Analytic Geothetry, Differential and Integral Calculus. To determine his entering level, each student solves increasingly more difficult problem on the Student Decision Placement Test, which is included; his level of ease determine this proper program entry level. Students attend one schedule conference each wee; and may study in the learning laboratory at other tilnes. Most of the work is completed in programmed textbooks. Only "A" and "B" grades are given. Each course outline contains performance objectives, course goals, average student completion time, and the number of credits allotted, as well as a list of suggested student materials and texts. Each course is presented with two approaches (tracks) one for those who are prepared for, but unfamiliar with, the course material, and one for review and in-depth study (DC)

### ED 040 325 High School Equivalency: Mathematics, Part II: Curriculum Resource Handbook.

New York State Education Dept., Albany, Bureau of Special Continuing Education

Pub Date - 70

Note 82p

Available from The State Education Department, Bureau of Continuing Education Curriculum Development, Albany, N.Y. (free to school personnel when ordered through school administra-

### EDRS Price - MF01 PC04 Plus Postage.

Descriptors Adult Students, \*Concept Formation, \*Curriculum Guides, Equivalency Tests, \*Instructional Materials, \*Mathematics, Problem Solving, \*Secondary School Curriculum, Teaching Mathods

Identifiers General Educational Development Tests

This mathematics curriculum resource handbook provides background information and techniques of instruction designed for instructors helping students to prepare themselves for the General Educational Development Tests. It consists largely of fundamental concepts which high school graduates are expected to retain, together with some techniques which may be of use in developing these concepts. Two specific although not "new," approaches to the presentation of mathematics characterize this program. The first is the importance placed on the language of mathematics as a unifying concept. The second approach is the use of manipulative devices. Wherever possible, it is desirable to use paper constructions, models, and movable figures as teaching methods. Emphasis is placed on the general area of problem solving. An annotated list of instructional materials (textbooks, workbooks, and review books) and the addresses of the publishers are included. (Author NL)

ED 012 836 GRAHAM, MINNIE M

ADULT BASIC EDUCATION WORK BOOK IN BASIC ARITHMETIC, PARTS I AND II.

Danbury Public Schools, Conn

Pub Date 66

Pub Date- 06
Note - 146P.
EDRS Price - MF01 PC06 Plus Postage.
Descriptors - \*Adult Basic Education, \*Arithmetic.
Instructional Materials, \*Workbooks

Identifiers CONNECTICUT, Connecticut (Dan-

bury)
THESE WORKBOOKS, WHICH ARE USED IN THE ADULT BASIC EDUCATION PROGRAM IN DANBURY, CONNECTICUT, PROVIDE TFACHING MATERIALS AND DRILL EXERCISES IN MULTIPLICATION, PART I CONTAINS MULTIPLICATION TABLES, PROBLEMS, AND DRILL INVOLVING THE NUMERALS TWO THROUGH NINE, PART II CONTAINS PROBLEMS AND DRILL EXERCISES USING THE NUMERALS TEN TO TWELVE, NUMBERS WITH TWO AND THREE DIGITS, THE USE OF ZERO, AND DOLLARS AND CENTS, FOLLOWED BY EXERCISES TO TEST SPEED AND ACCURACY (LY)

ED 179 422 Learning Partners: Reading and Mathematics.

Texas Education Agency, Austin Div of Cur-riculum Development Pub Date 79

Pub Date

Pub Date 18
Note 45p
Pub Type Guides - Classroom - Teacher (052)
EDRS Price - MF01 PC02 Plus Postage,
Descriptors \*Applied Reading, \*Content Are,
Reading, hlementary Secondary Education, interpretive Skills, Mathematical Vocabulary,
Skills, Mathematical Vocabulary,
\*Mathematics Instruc-\*Mathematics Education, \*Mathematics Instruc-tion, Reading, \*Reading Comprehension, Re-source Materials, Study Skills, \*Symbols (Mathematics)

This publication is designed to acquaint both mathematics teachers and reading specialists with some of the skills students need to read mathematics effectively and to provide sample activities that may he used as a part of mathematics instruction to help students develop these skills. It pick covered in-cided Specialities Vicability and Symbols, Com-prehension, and Smary Techniques. Also include a a lot of suggested blocks for columbary mathematical treating and a fixt of resource materials for tenchers (Author, MK)

3101

FD 170 119 Linetti C. James - Shyden, Ted.

Resources for Teaching Mathematics in Bilingual Classrooms.

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio

Spons Azerky National Inst. of Education (DHEW), Washington, D C. Pub Date. Jun 79. Note: 607

from Information Reference Center Available (ERIC IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, Ohio 43212

Pub Type Reference Materials - Bibliographies

EDRS Price - MF01 PC03 Plus Postage.

Descriptors "Bilingual Education, "Cultural Awareness, Elementary Secondary Education, "Instruction, "Mathematics Education, "Resource Materials, \*Spanish Speaking

identifiers. Information Analysis Products

A substantial resource is provided for those concerned with mathematics teaching in bilingual programs. Part I provides a concise overview of the soiles and problems involved in the teaching of mathematics in bilingual classrooms. It begins with a brief description of the field of pringual education and then considers the role of mathematics teaching with respect to the language of instruction, culturareferents, and certain psychological factors. Part II consists of an innotated bibliography of materials for fearing mathematics in Spanish English programs. A list of suppliers of bilingual mathematics materials, a list of references to general bilingual materials, and a phrase list are appended (MP)

3102

de la Rioa, Raul - Hackett, Eugene deG. National Migrant Education Program Math Skills Information System.

New Mexico State Univ., University Park, ERIC Clearinghouse on Rural Education and Small Schools

Spons Agency National Inst. of Education (DHEW), Washington, D.C. Pub Date. Jun 79. Contract. NIE-R-7840003.

Available from National Educational Laboratory Publishers, Inc., \$13 Airport Blvd., Austin, Texas 78702 (Stock No. EC-070, \$3.50)

Pub Type Reports Descriptive (141)

EDRS Price - MF01 PC02 Plus Postage.

Descriptors - Basic Skills, \*Data Bases, Display Systems, Elementary Education, Information Needs, \*Information Systems, Information Utilization, Input Output, Mathematical Concents, Mathematical Mathematical Experience, \*Mathematics, Mathematics Education, \*Migrain Education, Migrants, \*Online Systems, \*Skills, Student hyaliation, Teacher Role Identifiers Migrant Student Record Transfer bys-

tem, \*National Migrant Educ Prog Math Skills

The educational background and issues which

shaped the design of the National Mogrant Education Program Math Skills Information System are explained in this report, along with a full description of the leatures of the system and its operation. It discusses the variety of math skills information used to permit teachers to input and receive math skills information about migrant students in order to instruct continuity of education. Discussion covers the (1) issues and factors affecting the design of the Migrant Student Record Transfer System (MSRTS) Math Skills Information System its livers, skills information needs, math skills hierarchy continuity, "proper" math skills, (2) background and design somsiderations of the MSRTS Math Skills List nature of mark as a subject matter, anatomy of a math skill statement, sciention of the level of detail math skill statement, selection or the ever or deta-at which to define math skills (3) structure of my MSRTS Math Skills List areas, topics, sabiopics, skills, code structure, sequence of skills (4) con-tinuaty and user information needs need to know status of student regardless of teaching methods use L. (5) Math Skills Information System reports posplays; and reference documents, column of the formation into skills lists, lovel of detail for reports, standard displays, standing orders, and (6) the systein's operation. Also included one sample, or reperty and queries (RS).

3103 ED 159 066

Kurrz, F. E.z.

Metrics for Elementary and Middle Schools: The Curriculum Series.

National Education Association, Washington, D.C. Pub. Date: 78 Pub Date: 78 Note: 121p. Not available in hard copy due to

sopyright restrictions

Available from National Education Association, 1201 Sixteenth St., N.W., Washington, D.C. 2002b (Order Number 1714-5-06, No price quoted)

Pub Type Books (010) EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors "Elementary School Mathematics, Elementary Secondary Education, Inservice Education, Learning Activities, Measurement, "Metric System, Resource Materials, Secondary School Mathematics, "Teacher Education

This book is designed for teachers in elementary and middle schools who need explanations of problems and questions concerning the metric system and a source of classroom activities to aid in teaching the metric system. The book is divided into three parts. The first part is a printer of information designed to help a teacher in answering the many questions that children and parents will ask. This part also includes practice problems for all teachers involving the mathematics of metrics. The second part consists of ideas and activities that teachers of the nonmathematics curriculum may incorporate into their lessons to aid in the total metric experience of the learner. Included in this part are sections on language arts, reading, social studies, music, and art. The third part deals with classroom activities that teachers of mathematics may use. A special section is included which uses only nonstandard measurement activities designed for primary chil-Attention is also given in this section to the use of metric measurements in presenting activities that are concrete, semi-concrete, and abstract in nature. The activities are labeled according to length. weight. area, volume, and temperature (Author MP)

3104 ED 156 528 Mathematics: Ideas for Strengthening Mathematics Skills.

New York State Education Dept. Albany Bureau of General Education Curriculum Development. State Univ. of New York, Albany ab Date: 78

Pub Date

Pub Date (8)
Note 42p
Pub Type Guides - General (050)
EDRS Price - MF01 PC02 Plas Postage.
Descriptors Activity Units, "Basic Skills, "Elementary Secondary Education, Instruction, "Instructional Materials, "Mathematics Education, Mathematics Materials, Remedial Mathematics, "Timbher Mathematics Materials, Timbher Mathematics, "Timbher Mathematics, "Timbher Mathematics," \*Teacher Developed Materials, Teaching Mothods

The perpose of this publication is to give an overview of some specific schemes that have been used successfully by teachers throughour New York State to strengthen mathematics oils. The various components of this publication of or ideas that have neen successful with primary, a termediate, and seconducts students. Ideas included (1) how to make use of manipulative materials, algorithms, games, relevant applications, diagnosis, and visual sequence, and (2) structural approach suggestions

3105 ED 144 843 Systematic Teaching and Measuring Mathematics "STAMM," Mini-Sampler.

Jefferson County Public Schools, Lakewood, Cole-Pub Date [77] Note [34p], Contains occasional colored pages

Note 34p. Contains occasional coloted pages affich may not reproduce well.

1ab Type. Reports: Descriptive (141).

EDRS Price - MF01 PC02 Plus Postage.

Descriptors: "Competency Based Education, Continuous Progress Plan, "Curriculum, Elementary Secondary Education, Instruction, "Management Systems, "Mathematics Inflication, "Program Discriptions, Tallibune Guides, Tests.

Descriptions, Traching Cardes, Tests dentifiers—Colorado, \*Project STAMM—This booklet contains an overview and a sample of ones of the curricular materials developed in Jetterson Country's Systematic Teaching and Measuring Mathematics (S LAMM) program. It provides continuous progress in mathematics, K-12, sing many materials (S LAMM) and Mathematics (S Lamm). agement its objectives. Well-defined processes for diagnosis, instructional activities, and assessment are indicated, with hints on the need for careful record-keeping. Achievement on both standardized and enterion-referenced tests has consistently improved since the implementation of the program Teacher resource packets, grades, and a sampler kit are available for purchase. (MS)

ED 143,504 Guidelines for Mathematics Instruction in Indiana Schools, 197

Indiana State Dept of Public Instruction, Indianapolis

Pub Date

Pub Date 12.

Note 1849. Replaces ED 036 439.

Pub Type Guides - General (050).

EDRS Price - MF01 PC04 Plus Postage.

Descriptors Curriculum, \*Curriculum Guides,

Elementary School Mathematics, Elementary

Secondary Education, \*Instruction, \*Mathematics Education, \*Objectives, Secondary School

Mathematics, \*State Curriculum Guides

Identifiers \*Indiana Mathematics, \*Stat Identifiers \*Indiana

This set of guidelines replaces the 1969 Guidelines. Planned to assist local committees in planning curricula, it contains objectives for which local school systems must determine criteria for acceptable performance. Guiding principles on philosophy. objectives, evaluation, providing for individual dif-ferences, instructional aids, and calculators are briefly discussed. Objectives for seven strands in K-8 are presented; numbers and numeration, operations and computation, geometry, measurement, problem solving and number sentences, graphing and relations, and probability and statistics. Objectives for the secondary school are presented by course. Suggestions of implementing the guide are also included. (MN

Charbonneau, Manon P.

Learning to Think in a Math Lab.

National Association of Independent Schools, Boxton, Mass.

Pub Date Apr "I Note 127p; Not available in hard copy due to copyright restrictions; Photographs may not reproduce well-

Available from National Association of Independent Schools, Four Liberty Square, Boston, Mass 02109 (\$2,50)

Pub Type Guides - General (050)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

ble from EDRS.

Descriptors \*Discovery Learning, Elementary Education, \*Elementary Nehool Mathematics, \*Experiential Learning, Instruction, \*Instructional Materials, \*Laboratory Procedures, \*Manipulative Materials, Mathematics Education, Problem Solving

This document begins with a discussion of the studies, instruction from the mathematics in procedures.

author's approach to instruction in a mathemetics laboratory. This discussion neiudes an enumeration of types of desirable or necessary equipment and advice on the management of a laboratory. The acthor examines issues related to achievement and readiness for more traditional school experiences in later grades, and offers points from his own educa-tional philosophy. The major portion of the document is devoted to detailed descriptions of activities



or series of activities which have been used successfully. Activity topics are quite diverse and include numeration systems, number lines, measurement, geoboard activities, map making, geometric solids, and others. The document concludes with reproductions of activity cards used by the author (SD)

3108

ED 139 595

Miller Richard L.

Individualized Instruction in Mathematics: A Review of Research.

Note: 109p., M.A. Thesis, University of Maryland, Not available in hard copy due to marginal legibility of original document.

Pub Type Dissertations Theses - Undetermined.

#### EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors Achievement, Cost Effectiveness, Elementary School Mathematics, Elementary Secondary Education, \*Individualized Instruc-Necondary neuction, "markwarance instruc-tion, Instruction, "Mathematics Education, Re-search, "Research Reviews (Publications), Secondary School Mathematics, "Student Cha-racteristics, "Teacher Characteristics

After a discussion of the characteristics of in-disidualized instruction, 145 experimental studies ducted since (927), are reviewed. Stadies are numerically classified on a 5-point scale according to the direction and significance of results concerning students' achievement and attitudes, with the highest score (4) indicating significant, results favors ing the experimental group. Using these scales, the average differences in achievement and attitude of students are compared on the bases of duration of the study, grade level, initial ability of students, in-dividual differences among students and teachers, and cost factors. Other variables related to some studies were retention, transfer, and development of study skills. Summarizing the studies, the author observes that, in general, research does not support he effectiveness of individualized instruction. However, when specialized problems or objectives are involved, it can be a fruitful instructional approach (SD)

3109

ED 137 726

Hellander, Sheila K.

Reading the Special Language of Mathematics. Pub Date May 77

Note: 18p., Paper presented at the Annual Meet-Note 18p. Paper presented at the Annual Meeting of the International Reading Association (22nd, Miami Beach, Florida, May 2-6, 1977). Pub Type Spenches Meeting Papers (180). EDRS Price - MF01 PC01 Plus Postage. Descriptors. \*Content Area Reading, \*Mathematics Instruction, \*Reading Comprehension. \*Panding Instruction. Secondary.

hension, Reading Instruction, Secondary Education, \*Symbols (Mathematics), Teaching Methods, \*Vocabulary Development

Reading the language of mathematics textbooks is very different from reading the narrative in traditional basal textbooks, and children should be taught how to read in a mathematics course; teachers should not assume a transfer of skills will occur Specific skills, such as noting details, following directions, and recing relationships, should be taught. Students should be shown how to modify their flexible narrative reading styles to one of great delibera-tion, in order to understand mathematics reading material. The specialized vocabulary of mathematics and the special mathematical symbols must also be specifically taught, beginning with concrete examples when rossible. Suggestions for instruction include getting the students to discuss the expository material or the verbal problem, in or fer to understand their thinking processes, being careful, as an instructor, nor to talk too much, being sure that students understand the technical vocal-ulary, and preparing short-at swer, multiple-choice tests to use as prefests before instruction in a particular concept. (MKM)

3110

ED 137 102

Schwen, Harold L. Individualized Mathematics Instruction: What Are the Specific Problems?

Pub Date [78] Note [28p], For resided documents, see SE 022 306-307. Contains occusional light of broken

Reference Materials - Bibliographies

EDRS Price - MF01 PC01 Plus Postage.

Descriptors Achievement, Carriculum, \*Flementary School Mathematics, Elementary Secondary Education, \*Individualized Instruction, Instruction, Mathematics Education, \*Research Reviews (Publications), \*Secondary School Mathematics Research dealing with specific aspects of individu-

alized mathematics programs is summarized in this paper. Some explanations for the failure of self-pacing to result in superior achievement are examined Studies dealing with student-teacher interaction in individualized programs are cited. Research with implications for new directions for individualization is reviewed. Finally, characteristics of successful students in self-paced programs are examined along with some alternate approaches to individualiza-tion (Author DT)

ED 134 972

Reading the Language of Mathematics. Florida State Dept of Education, Tallahussee Pub Date [75] Pub Date [75] Note 1056 Pub Type (randes - General (CS)

Pub Type Graides - General (15): EDRS Price - MF01 PC05 Plus Postage. Descriptors "Corrent Area Reading Context Claes, Elementary Secondary Education, Mathematics, "Mathematics Instruction, Reading Comprehension, "Reading Instruction, Study Skills, "Symbols (Mathematics), Teaching Methods, "Vocabulary Development, World Study Comp.

The purposes of this booklet are to acquaint both mathematics teachers and reading teachers with some skills which students need for effectively reading the language of mathematics and to provide sample activities which may be used as an integral part of the mathematics class, in an effort to help students develop those skills. Since mathematics is an abstract science involving the use of a system with highly specialized symbolism and technical terminology, it is suggested that the mathematics teacher accept major responsibility for teaching students to read mathematics. A section on vocabulary and symbols discusses reading mathematical symbols, the directionality of such symbols, and reading mathematical words. Following directions, interpreting graphic materials, reading mathematical sentences, and reading and solving word problems are discussed in the comprehension section. Other sections include a detailed discussion of study techniques, a list of books suggested for voluntary mathematical reading, a bibliography, and a list of resource materials suggested for teachers. (MKM)

ED 105 407

Reading Mathematics

Georgia State Dept of Education, Atlanta Office of Instructional Services Pub Date 75

Pub Date

Pub Date 5
Note 38p
Pub Type Guides - General (050)
EDRS Price - MF01 PC02 Plus Postage.
Descriptors \*\*Content Area Reading, Elementary Secondary Education, \*\*Eye Movements, \*\*Mathematics, Reading Instruction, Semantics, \*\*Teaching Matheus.\*\* ing Methods

Identifiers Georgia, \*Right to Read

Two processes involved in reading mathematics are discussed in this document, eye movements and relating the mathematical idea to the appropriate word or symbol. Many kinds of eye movements are used in mathematics around, top-to-bottom, bot-tom-to-top, diagonal, backward and forward, and follow the arrow. Examples of each kind are presented. The language of mathematics uses many kinds of words those that are primarily mathematics words, words of everyday usage, and words that has a several different meanings, some mathematical and some not. Many examples of each of these kinds of words are presented as incentives for reading and mathematics, teachers, to cooperatively explore techniques used in reading that may be adapted to mathematics (TO)

ED 087 639 Smith. Sealon E. Jr. Ed. Backman, Carl 4, Ed. Teacher-Made Aids for Elementary School Mathematics. Readings from the ARITHMETIC TEACHER.

National Council of Teachers of Mathematics, Inc., Washington, D.C.

Pub Date

Note

Available from National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091 (\$3.00)

EDRS Price - MF01 Plus Postage, PC Not Available from EDRS.

Descriptors \*blementary School Mathematics, Experientia, Learning, Fractions, Geometric Concepts, \*Instructional Materials, \*Manufacture Materials, Number Concepts, Numbers, \*Leacher Developed Materials

\*Identifiers \*National Counc." of Teachers of Mathematics.

Mathematics

collection of articles from the ARITHMETIC IFACHER is presented which are about practical. classroomstested ideas for the instruction and use of reacher-made instructional aids. These cutries dear only with manipulative type aids. They have been selected for the clarity of purpose and relationship to contemporary topics in the elementary school mathematics curriculum. The articles provide sufficient information and specifications so that leachers can construct the aid and include directions or exumples relative to using the aid for instruction organization of topics is based on major strands of clementary school mathematics, whole numbers, numeration, integers, rational numbers, geometry, and measurement (JP)

#### ED 081 590 Mathematics for Sheridan Schools, Grades K-12, Curriculum Guide.

Sheridan School District 7, Willia

Spons Agency - Bureau of Hernentary and Seconds-ary Education (DHFW OF) Washington, D.C. Pub Date 69 Note 326p

Descriptors \*Curriculum, \*Curriculum Guides, \*Elementary School Mathematics, Instruction, Mathematics Education, \*Objectives, \*Secondary School Mathematics

Identifiers Title III Elementary Secondary Education Acr

This guide includes a list of general objectives and scope chart of units to be covered in grades K-12 Objectives for specific topics are listed and are coded to the scope chart, text sources and materials are suggested, and lists of learning activities and audiovisual aids are provided. Separate sections of the guide cover topics in elementary school mathematics and junior high school mathematics, an individual lesson program for Algebra II is detailed, and topics to be covered in grade 12 are specified A list of supplementary mathematics aids and sources is included. This work was prepared under an ESEA Title III contract (DT)

ED 071 878

Briggs, John W.

Idaho Curriculum Guide in Mathematics K-12, Idaho State Dept. of Inducation, Bosse. Div. of the struction

Pub Date | Sep 70

3310

EDRS Price - MF01 PC14 Plus Postage, «
Descriptors - \*Behavioral Objectives, Curriculum,
 \*Curriculum Guides, \*Elementary School Mathematics, \*Instruction, \*Mathematics Education, Secondary School Mathematics, Teaching Methods

The content of this guide has been organized under five major topics; number and operations, sets, functions, relations, systems, and logic, geometry, measurement and estimation, and selected topics. A scope and sequence chart is given for each of the topics for grades K-12. Bel vitoril objectives, eaching aids and suggestions are listed for each of the topics at every grade level from K-8. A list cold for the topics at every grade level from K-8. references on problem solving is included (DT)

#### 3116 ED 062 206 Classroom Proven Motivational Mathematics Games, Monograph No. 1

Michigan Council of Teachers of Mathematics Pub Date | Dec 71

56p; Guidelines for Quality Mathematics Note

EDRS Price - MF01 PC03 Plus Postage.

Descriptors Class Activities, \*Editicational Games, \*Elementary School Mathematics, Geometric Concepts, \*Mathematical Enrichment, Mathematics Education, Number Concepts, \*Puzzles, \*Secondary School Mathematics

This collection includes 50 mathematical games and puzzles for classroom use at all grade levels Also included is a wide variety of activities with cubes, flash cords, graphs, dots, number patterns, geometric shapes, cross-number partiles, and magic squares (MM)



3117 ED 062 036 Fort Benton Mathematics Curriculum Outline.

Fort Betton Public Schools, Mont Spons, Agency Office of Education (DHFW), Washington, D.C. Projects to Advance Creativity in Education Pur Date 11 Note 97p

EDRS Price - MF01 PC04 Plus P. ake.

Descriptors Aigebra \*Curriculum des \*Educational Objectives hlementary Education, Geometry, \*Instructional Materials, Kindergy\* ien, Mathematical Concepts, \*Mathematics Cur-riculum, Measurement, Number Concepts, Secondary Education, \*Small Schools

The mathematics curriculum of the Fort Benton school system was designed with funits under Title III of the Elementary and Secondary Education Act to present all students with a basic knowledge of mathematics and to provide the gifted child with at opportunity to develop to the best of his ability the mathematical skills and theors diginarded by a telestrological society. Basic goals of the curriculum inconjugation screen basic goals of air corriction in-clude development of a knowledge of mathematical concepts, the skill of computation, an understanding of mathematical terminology, and a knowledge of surger opportunities in mathematics. The cur-Kitch opposition in an administration for grades K-12 which includes algebra, geometry, and consumer mathematics. Objectives and instructional resources are specified for each grade level (JH)

ED 059 910 Mathematics Framework for California Public Schools, Kindergarten Through Grade Eight. The Second Strands Report.

Culifornia State Dept of Education, Sacramento Pub Date - 72 Pub Date

EDRS Price - MF01 PC06 Plus Postage.

Descriptors Algebra, Arithmetic, \*Curriculum, \*Elementary School Mathematics, Evaluation Criteria, Geometry, Mathematics Education, Secondary School Mathematics, State Curriculum Guides

luentifiers California

This report of a statewide Mathematics Advisors Committee outlines the kindergarten through grade eight mathematics curriculum in terms of nine "strands" Numbers and Operations Geometry eight mainematics curriculum to terms to mae instands." Numbers and Operations, Geometry, Measurement, Applications of Mathematics Statistics and Probability, Sets. Functions and Graphs, Logical Thinking, and Problem Solving. Broad goals for the entire program, and specific goals for each strand, are stated. Examples are given of activities and content leading to these goals. Material in the strands is not allocated to specific grade levels, but related to the students' overall development. An algebra course for grade eight is discussed, and the 1968 state enteria for the evaluation of textbooks is reprinted in an appendix. This document is intended to be of use to writers and publishers as well as tenchers (MM)

3119 ED 051 178 K-12 Mathematics Curriculum Guide. Reading Community Schools, Ohio

Pub Date 210n

Note 216p
EDRS Price - MF01 PC09 Plus Postage.
Descriptors \*Curriculum Guides. \*Elementary
Education, Grade 1, Grade 2, Grade 3, Grade 4,
Grade 5, Grade 6, Grade 7, Grade 8, Grade 9,
Grade 10, Grade 11, Grade 12, Intermediate
mades. \*Kindergarten. \*Mathematics. \*Secondsec Education. Education

GRADES OR AGES K-12 SUBJECT MAT-TER Muthematics ORGANIZATION AND DICUSICAL APPEARANCE The guide is divided into three sections, one each for elementary grades, middle grades, and high school. Each section is further subdivided by grade level. Sections are laid out in four columns across two pages. Column headings are concepts, teaching methods and learning activilies, resources, and evaluation. The guide is mimeo-graphed, and loose-leaf bound with a soft cover OBJECTIVES AND ACTIVITIES, General objec-OBJECTIVES AND ACTIVITIES. General objectives are outlined in an introductory section. Siggested activities are correlated with specific mathematical concepts and specific objectives. Most of the activities in middle grades and high school consist of working problems in textbooks INSTRUCTIONAL. MATERIALS Material needed for an activity are listed with the activity description. Most materials listed for the middle analysis and high school are nage references in textgrades and high school are page references or text-

books SILDENI ASSESSMENT, Suggestions for evaluation accompany each group of activities correlated with a concept usually teacher observation in the lower grades and teacher-developed and textbook quitzes in the upper grades (RT)

3120 Mathematics Guide, K-12.

Volusia County Board of Public Instruction, De Land, Fla

Note 985
EDRS Price - MF01 PC04 Plus Postage.
Descriptors \*Curriculum Gindes, \*Llementary
Education, \*Kindergarten, \*Marhematics Curriculum, \*Secondary Education

GRADES OR AGES 8-12 SUBJECT MAT-JER, Mathematics ORGANIZATION AND PHYSICAL APPEARANCE The gardens divided of to numerous straight-text changes interspersed with diagrams and charts. It is veroved and spiral-bound with a paper cover. OBJECTIVES AND ACTIVITIES General objectives to mathematics are stuffined in an introductory section. More specific objects is the botol for three levels, grades King Time, and Califold Subsequent chapters present a method for grouping students into four levels or the basis of ability and for selecting textbooks for each dve. Defaued content sequence charts for grades K-6 keyed to two different textbook series are in-duded. Content suggestions for grades 7-9 and 10-12 are brief and general. Several appendixes contain lists of suggestions for mathematics projects No mention is made of appropriate grade or ability level for these activities. A special section gives hints on heiping slow learners. INSTRUCTIONAL MATERIALS: No mention, except of standard textbooks. STUDENT ASSESSMENT. Guidelines suggest the use of both standardized and teachermade tests. Several sample diagnostic tests are in-

3121 ED 036 451 [Cambridge Conference on School Mathematics Feasibility Studies 9-13.]

Cambridge Conference on School Mathematics, Newton, Mass

Pub Date [69] Note - lop

EDRS Price - MF01 Plus Postage, PC Not Availa-

ble from EDRS.

Descriptor \*Curnculum Development, \*Elementary Sch. i Mathematics, \*Instructional Materiary School \*Mathematics, \*Secondary School

Identifiers Cambridge Conference on School Mathematics MA

These materials are a part of a series of studies sponsored by the Cambridge Conference or, s Mathematics which reflects the ideas of CCSM regarding the goals and objectives for school mathematics K-12. Feasibility Studies 9-13 contain a wide range of topics. The following are the ritles and brief descriptions of these studies. Number 9. "Streams of ideas on Checks, Approximations, and Order of Magnitude Calculations." This paper suggests that students should be made aware of major sources of errors in calculations so that they can concentrate on learning mathematical concepts. Mathematics which reflects the ideas of CCSM reconcentrate on learning mathematical concepts. Number 10 "Complex Numbers Leading to Trigo-nometry". This study introduces the reader to Trigonometry by the use of complex numbers Number 11 "The Use of Negative Digits in Arith-Negative integers are introduced after the four fundamental operations have been mastered The notation 3 is used for negative three. Number 12 "Use of the Shift Theorem in Differential Equations." This study describes the use of the Shift Theorem to solve certain types of differential equa-tions. Number 13 "Topology in 10th Grade and After" a list of topological concepts which are relevant to high school mathematics is given in this study. [No. available in hardcopy due to marginal legibility of original document J (FL)

ED 030 556 Bolton, Earle Gueringer, June

Edgewood Independent School District Instructional Television Guides - Countdown, Teacher's Guide 5; Safari, Teacher's Guide 5; Probe, Teacher's Guide 6; Abacus, Teacher's Guide 6; Mathletics, Teacher's Guide 7; Algebraically Speaking, Teacher's Guide 8; Related Math I & II. Teacher's Guides 9 & 10; Spectra, Teacher's Guide 9

Edgewood Independent School District, San Antonio, Tex

Spons Agency Office of Education (DHEW),

Washington, D.C. Bareau of Fleoresitary and Seiondary Education Pub Date 65

EDRS Price - MF02 PC12 Plus Postage

\*Course Objectives, Currentum. \*Indicational Television. \*Riementary School Mathematics, Geometry. \*Secondary School Mathematics, \*Leaching Guides. Descriptors

Into osed is a number of bookiets containing less son outlines of materials in mathematics and science. These outlines are designed to give teachers and students an idea of what to expect when a telecast is senedules for their classes. The rele-lessons are given for the purpose of providing eninchment activities and giving coherence to the entire muthematics and science program. It is expected that these lessons, which are designed to be upplicable to the average student, will aid the teacher in present-tive average student, will aid the teacher in present-tive some of the more observe and for difficult to present of the course. The sequence of lesson outlines in this of the coarse. The sequence of lesson outlines in this to fise from are (1) Countdown, Grade 5, (2) Abacus, Grade 6, (3) Mathieties, Grade 7, (4) Mg braically Speaking, Grade 8, and (5) Related Math. I Grade 9, and II, Grade 10, (RP)

ED 018 369 FNGELKING, D.F.

MATHEMATICS PROGRAM FOR IDAHO PUBLIC SCHOOLS.

dano State Dept of Education, Boise Pub Date 65 Note 36P

EDRS Price - MF01 PC02 Plus Postage.

Descriptors Advanced Placement, Algebra, \*Arithmetic, Curriculum, \*Curriculum, Gundes, Elementary School Mathematics, Geometry, \*Mathematics, \*Secondary School Mathematics, Secondary School Mathematics, \*County County C Spiral Curriculum

Spiral Curriculum
Identifiers IDAHO, Idaho (Boise), IDAHO
STATE DEPARTMENT OF EDUCATION
THIS CURRICULUM GUIDE FOR ALL
GRADES OF PUBLIC SCHOOL INSTRUCTION IS INTENDED TO ASSIST LOCAL
SCHOOL DISTRICTS IN DESIGNING AN
ADEQUATE MATHEMATICS PROGRAM
THAT REFLECTS THE MODERN APPROACH THE GUIDE PRESCRIBES A PROGRAM WHICH IS SUFFICENTLY FLEXIBLE
TO BE USED BY LARGE DISTRICTS HAVING
A COMPLETE THREE-TRACK MATHEMATICS
PROGRAM WITH FIVE YEARS OF SECONDARY MATHEMATICS AVAILABLE, AS
WELL AS BY SMALL SCHOOLS OFFERING
ONLY A MINIMUM PROGRAM THE FOLLOWING INFORMATION IS INCLUDED IN
THE MAIN FODY OF THE REPORT (1) THE
OUTLINL OF SCOPE AND SEQUENCE FOR THE MAIN PODY OF THE REPORT (1) THE OUTLING OF SCOPE AND SEQUENCE FOR THE ELEMENTARY MATHEMATICS PROGRAM, GRADES 1-6, (2) SUGGESTED CONTENT FOR THE PROGRAM, GRADES 1-8, AND (3) TITLE AND COURSE DESCRIPTION FOR THE MATHEMATICS OF THE SECONDARY CURRICULUM IT IS HOPED THAT THESE GUIDES WILL BE OF SOME USE AT THE LOCAL LEVELS IN THE INITIATION OF PLANNING AND WRITING OF PROGRAMS THAT WILL ENSURE A PROGRESSIVE, ADE-THAT WILL ENSURE A PROGRESSIVE, ADE-OUATE, AND CONTINUOUS PROGRAM RELEVANT TO THE NEFDS OF LOCAL STU



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Aerospace Technology	0316	Parr II, Unit 46 Revised Edition (8)13
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573 9045	ish High Schools.	46-55 0032 Learning Activity Package, Algebra 93-94, 1 APA
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Algebra I, Package 03-04, Solving Equations and Problems 0044	9091 First Course in Algebra, Student's Text, Part II. Unit 10	Mathematics for High School, Elementary Func- tions (Part 1). Commentary for Teachers, Preliqui- nary Edition.
Algebra I. Package 03-05. Solving Inequalities and Problems 0043	0029 First Course in Algebra, Student's Text, Part I, Unit 9	Mathematics for High School, Elementary Func- tions (Parr. 2). Commentary For Teachers Preliminary Edition.
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Algebra I. Package 03-10, Functions, Relations, and Graphs.  0038	Individualized Math Problems in Logarithms.  Oregon Vo-Tech Mathematics Problem Sets.	Preliminary Edition.  0008  Mathematics for High School, Intermediate
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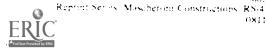
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